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LECTURES

ON

COMPARATIVE ANATOMY;

IN WHICH ARE EXPLAINED

THE PREPARATIONS

IN

THE HUNTERIAN COLLECTION.

BIBLIOTH. COLL. REG. MED. EDIN.

ILLUSTRATED BY ENGRAVINGS.

TO WHICH IS SUBJOINED,

SYNOPSIS SYSTEMATIS REGNI ANIMALIS,

NUNC PRIMUM EX OVI MODIFICATIONIBUS PROPOSITI.

By SIR EVERARD HOME, Bart.
V.P.R.S. F.S.A. F.L.S.

SERJEANT SURGEON TO THE KING; SURGEON TO THE ROYAL HOSPITAL, CHELSEA; SENIOR SURGEON TO ST. GEORGE'S HOSPITAL; HONORARY PROFESSOR TO THE ROYAL COLLEGE OF SURGEONS; TRUSTEE TO THE HUNTERIAN COLLECTION; PROPRIETOR OF THE ROYAL INSTITUTION; CORRESPONDING MEMBER OF THE ROYAL INSTITUTION OF FRANCE; MEMBER OF THE ROYAL SOCIETY IN GOTTINGEN; MEMBER OF THE PHYSICO-MEDICAL SOCIETY OF ERLANG; HONORARY MEMBER OF THE MEDICAL SOCIETY, PHILADELPHIA; HONORARY MEMBER OF THE ROYAL MEDICAL SOCIETY OF EDINBURGH; CORRESPONDING MEMBER OF THE MEDICAL SOCIETY, DUBLIN.

IN FOUR VOLUMES.

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1823.

ENGRAVINGS CONTAINED IN THIS VOLUME.

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DIRECTIONS FOR THE BINDER.

All the plates to face on the same side as the title plates.
All the explanations to face opposite the plates.
All folding plates to be fixed on guards.

The engravings in this volume are taken from drawings made by Mr. Bauer and Mr. Clift.

For simplicity, accuracy, and distinct representation of parts, they have rarely been exceeded.

EXPLANATION OF THE PLATES.

TAB. I.

LECTURE FIRST.

Fig. 1. Sixteen globules of the blood enveloped in their colouring matter; magnified four hundred diameters.

Fig. 2. Similar globules, after the colouring matter has been dissolved; magnified in the same degree.

Fig. 3. The colourless globules coalescing together, which does not take place while the colouring matter covers them.

Fig. 4. Muscular fibres reduced as far as they are divisible; magnified two hundred diameters.

Fig. 5 and 6. Two single fibres; magnified four hundred diameters: the one is straight, the other a good deal bent.

TAB. I.

Fig. 5.

Fig. 4.

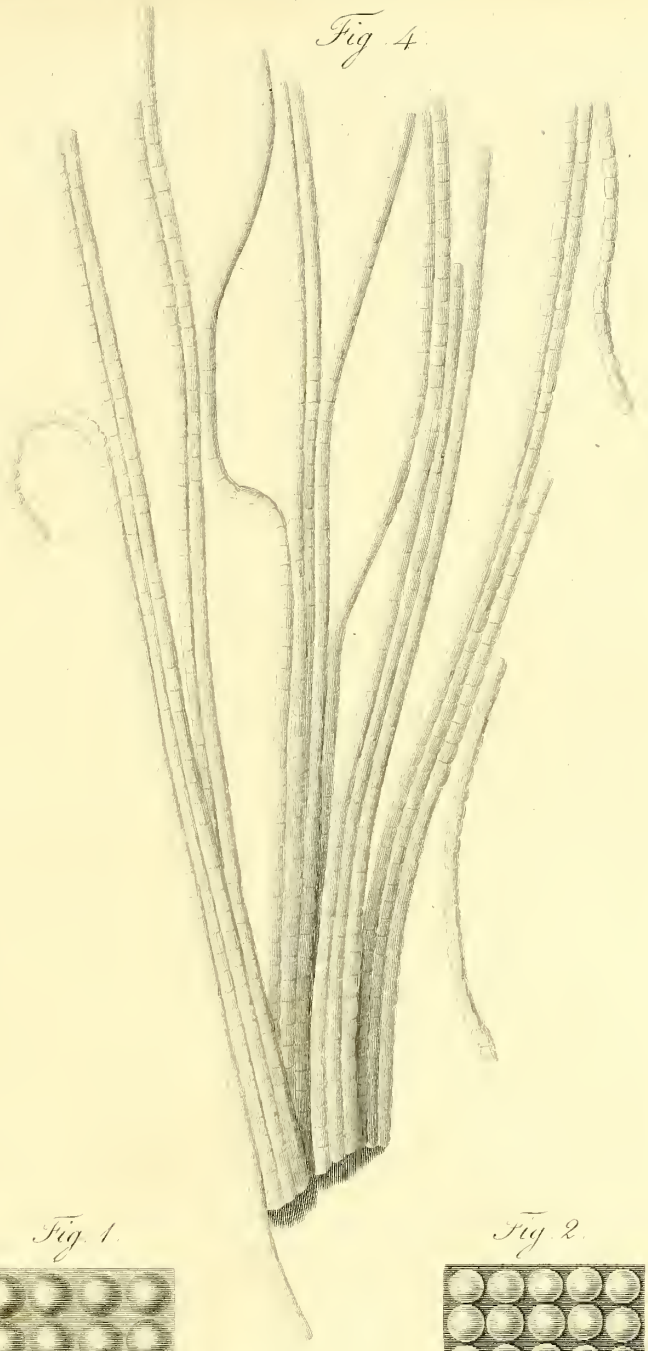


Fig. 6.

Fig. 1.

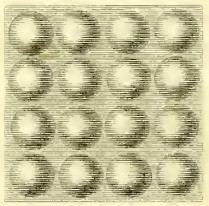
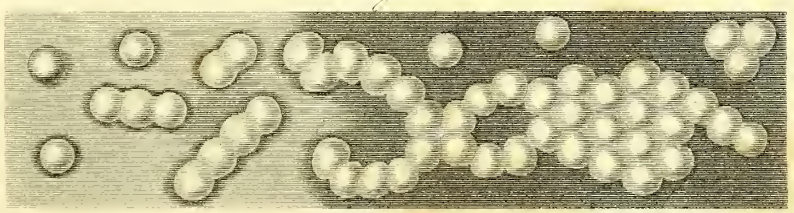


Fig. 2.

Fig. 3.



Franz. Bauer, del.

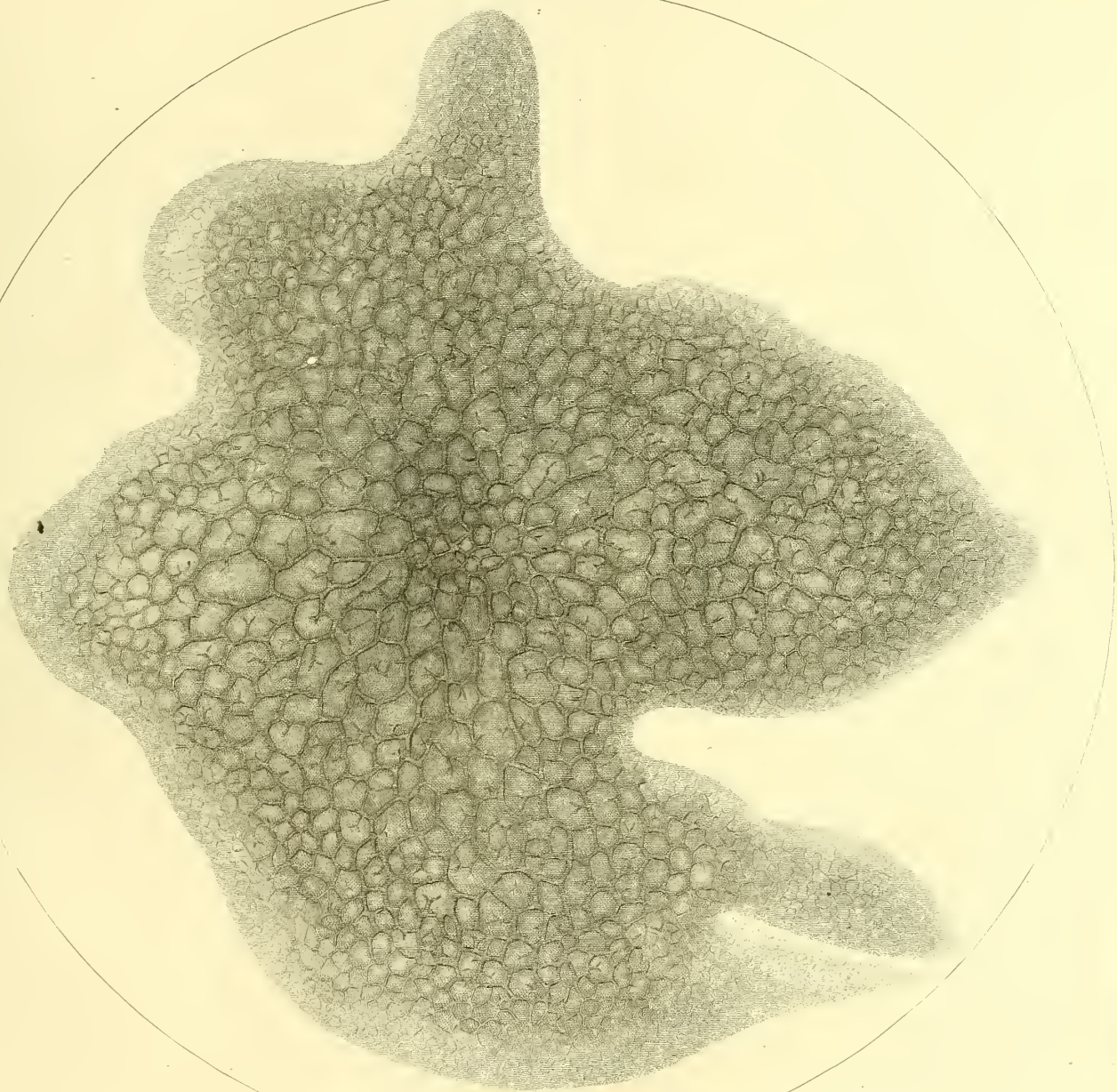
Js. Basire, sc.

TAB. II.

LECTURE FIRST

An exact representation of the appearance a single drop of human blood puts on when allowed to coagulate in a watch-glass; magnified twenty-five diameters.

TAB. II.



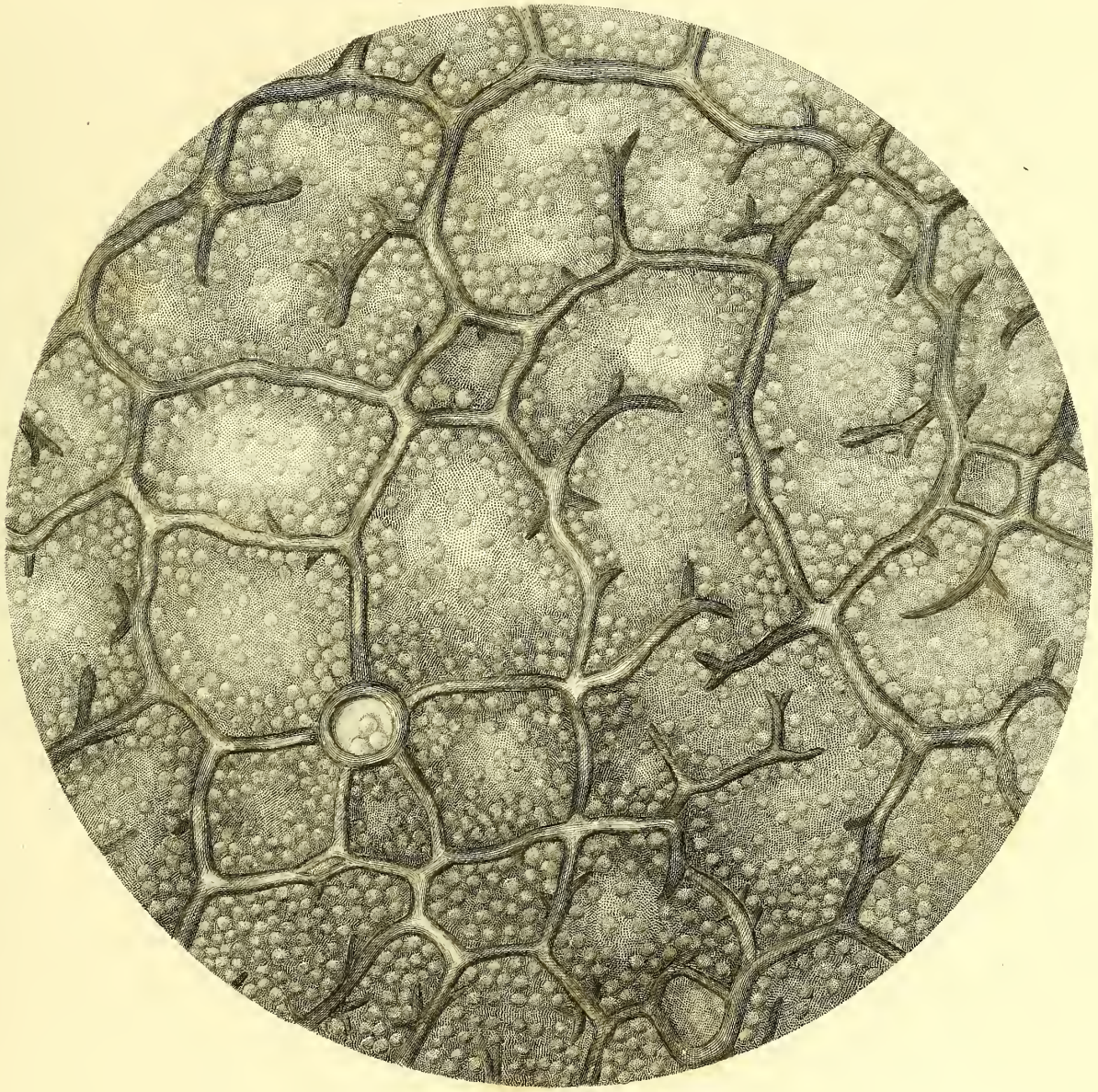
Franz. Bauer, del. P. Basire, sc.

TAB. III.

LECTURE FIRST.

The net-work represented in Tab. II. magnified two hundred diameters, to show that the globules of the blood make no part of the tubular structure.

TAB. III.



Franz Bauer. del.

J.s Basire sc

TAB. IV.

LECTURE FIRST.

The representation of a section of a coagulum of blood, which had been deprived of its fixed air by exhaustion in the receiver of an air-pump, and its place supplied by a preparation of coloured isinglass, called red minute injection.

Fig. 1. Shows the upper surface through the semitransparent pelicule; the ramifications are distinctly seen.

Fig. 2. A perpendicular section immediately after it was made; the parts are magnified twelve diameters.

Fig. 1.

Fig. 2.

Franz Bauer, del. *J.t Basire, sc.*

TAB. V.

LECTURE FIRST.

A small coagulum of blood, in consequence of an hæmorrhage from a branch of the mesenteric artery, deposited on the peritoneum forty-eight hours before death. The mesenteric artery was injected immediately after death, and the tubular appearance produced by the extrication of the fixed air during the act of coagulation is now occupied by the injection.

The parts are magnified thirty-five diameters.

TAB. V.

Franz. Bauer. del.

J.s Basire. sc.

TAB. VI.

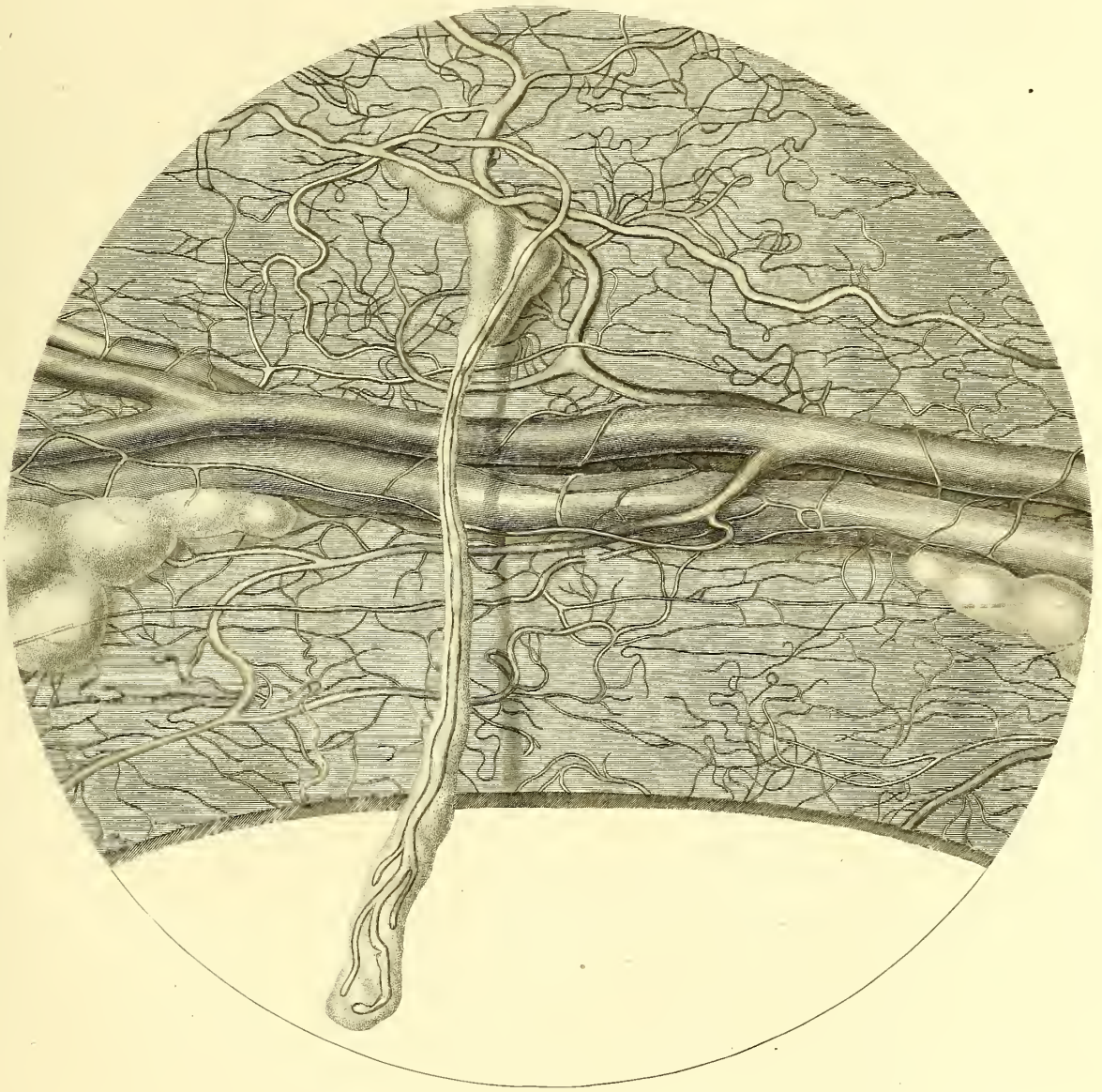
LECTURE FIRST.

A portion of intestine in the state of inflammation, having newly formed coagulable lymph upon its surface.

The tubular texture, produced by the extrication of fixed air during coagulation, is injected from the small arteries of the intestine.

The parts are magnified twelve diameters.

TAB. VI.



Franz.s Bauer del.

Js Basire sc.

TAB. VII.

LECTURE FIRST.

The section of a coagulum of blood, which had remained upon the body of the testicle for a month before the testicle was extirpated.

The parts, immediately after the operation, were injected; and by this means the tubes produced by the extrication of fixed air were filled with injection.

The parts are magnified thirty-five diameters; and the tubes may be said, from the thickness their coats had acquired, to have become arteries.

TAB. VII.

Franz Bauer, del.

J.s Basire, sc.

TAB. VIII.

LECTURE SECOND.

Fig. 1. A section of the coagulum contained in an aneurismal sac, showing the appearance the cut edges of the different layers put on, also the form the crystals of the salts of the blood put on. Natural size.

Fig. 2, and 3. Different views of these crystals. Magnified five diameters.

Fig. 1.

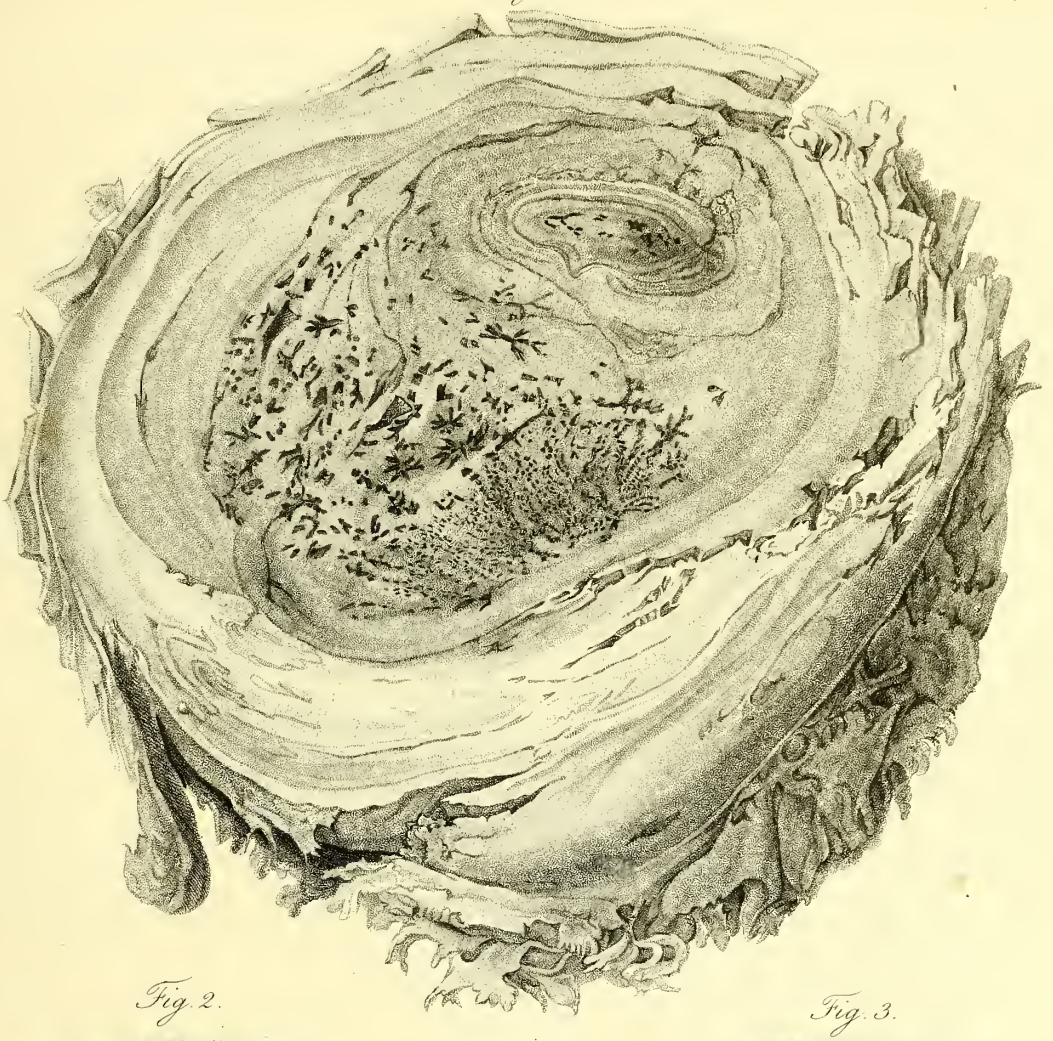


Fig. 2.

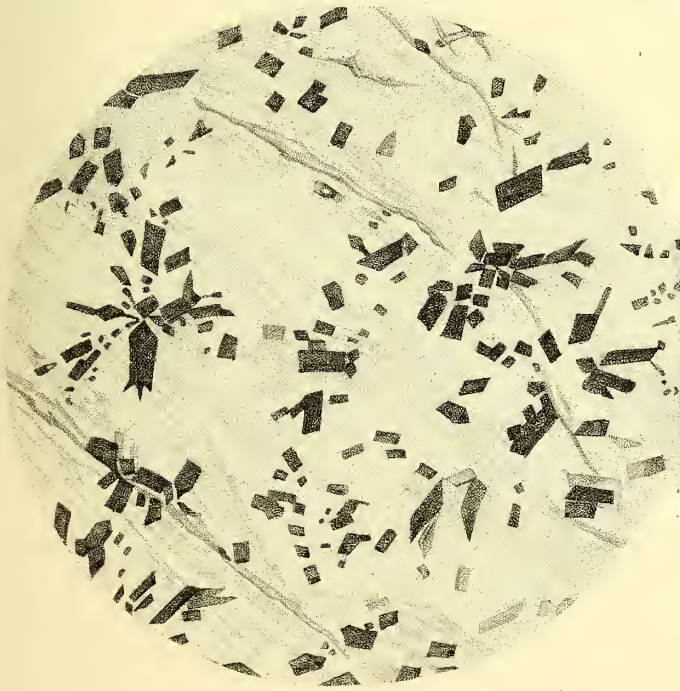
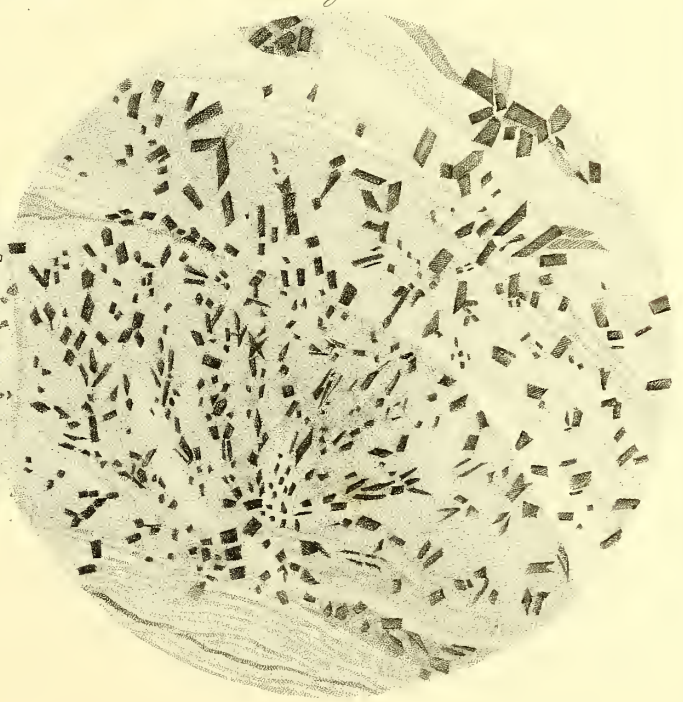


Fig. 3.



Franz. Bauer. del.

J. Basire sc.

TAB. IX.

LECTURE SECOND.

Fig. 1. Section of a tumor, in which, although in its origin it was enclosed in a membrane, in the course of its increase a fungus of a cancerous nature took place, which did not admit of a cure. Natural size.

Fig. 2 and 3. Two portions of the vascular part. Magnified five diameters.

Fig. 4 and 5. Two portions showing the different sizes of the globules in the colourless and vascular part. Magnified two hundred diameters.

Fig. 6. A row of lymph globules. Magnified four hundred times.

Fig. 7. A row of blood globules. Magnified four hundred times.

Fig. 1.

Natural size.

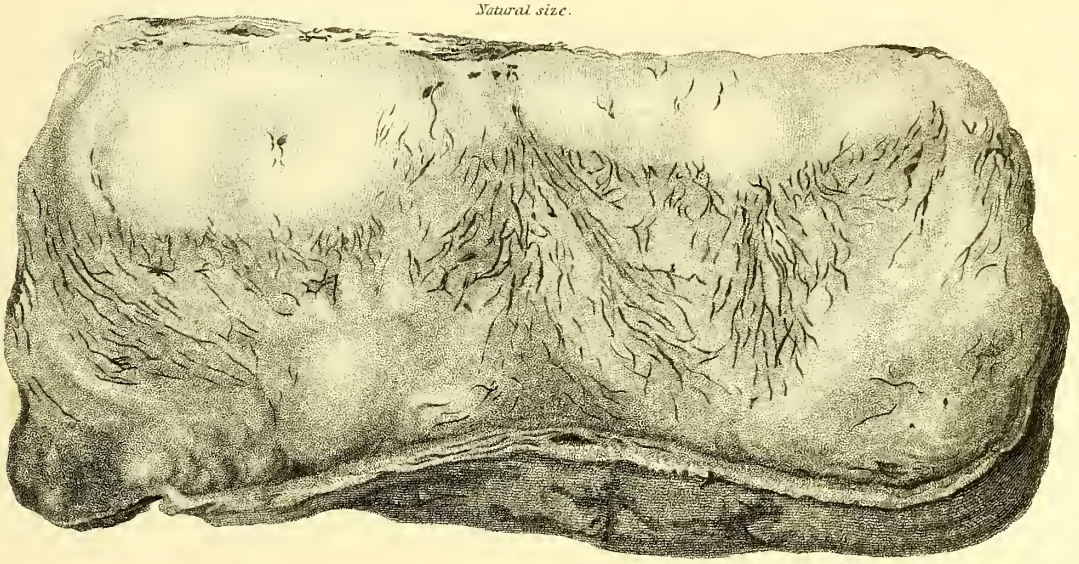


Fig. 2.

Fig. 3.

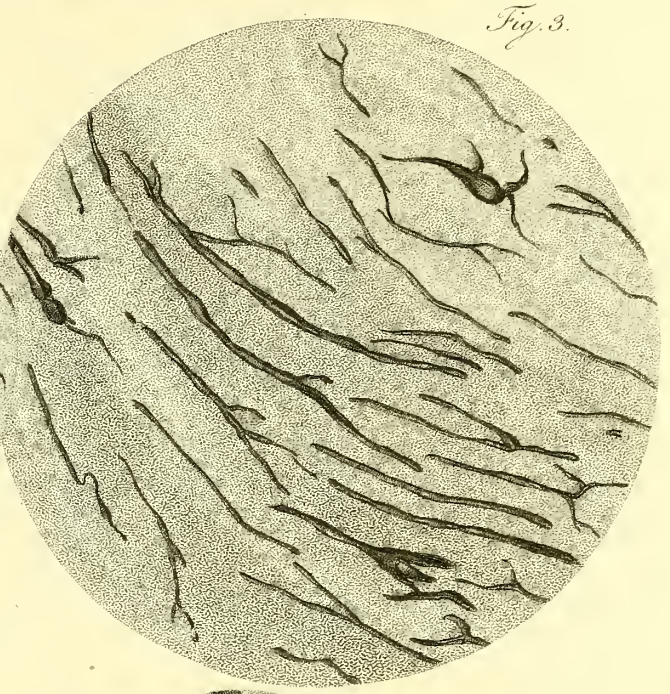


Fig. 4.

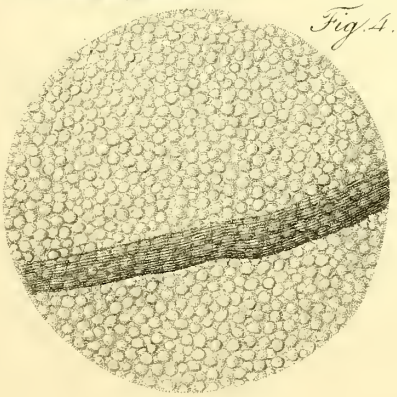


Fig. 5.

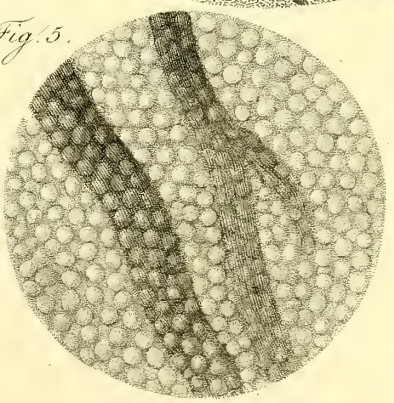


Fig. 6.

Fig. 7.

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F. Basire. sc.

TAB. X.

LECTURE SECOND.

Fig. 1. Shows the changes that take place upon the surface of a sore that had been confined by strips of adhesive plaster; when the plaster was removed, nothing was seen but pus. After an exposure for ten minutes, the limb resting in an horizontal posture, all the canals carrying red blood were seen to form, and the globules of fixed air had appeared: the apparent cuticle is inspissated pus. Magnified ten diameters.

Fig. 2. The appearance of the same sore next day, to show the rapid progress of the formation of cuticle under the treatment of pressure by the adhesive plaster. Magnified ten diameters.

TAB. X.

Fig. 1.

Fig. 2.

Franz Bauer del.

Fs. Bassire sc.

TAB. XI.

LECTURE SECOND.

Fig. 1. The surface of a sore under the same circumstances as in the last plate. Magnified ten diameters.

Fig. 2. When this surface had cold spring water poured over it, and had remained exposed for ten minutes, it had undergone the changes represented. Magnified ten diameters.

TAB. XI.

Fig. 1.

Fig. 2.

Franz. Bauer. del.

J.ⁿ Basire. sc.

TAB. XII.

LECTURE THIRD.

Fig. 1. In A are represented the sized globules predominant in the cerebrum, $\frac{1}{3200}$ part of a lineal inch. The other squares contain loose globules of various sizes, fragments of bundles, and single globular fibres of the medulla of the cerebrum in a recent state, immersed in water.

Fig. 2. The same dried; in which state the accumulated mucus and some newly produced globules become visible.

Fig. 3. The medulla cerebri diluted in water, showing venal branches with valves, loose globules, and fragments of globular fibres.

Fig. 4. The retina of the human eye diluted with water, showing anastomoses of arterial branches, which are not met with in the brain, loose globules, and globular fibres of the different sizes met with in the cerebrum.

TAB. XII.

Fig. 1.

A

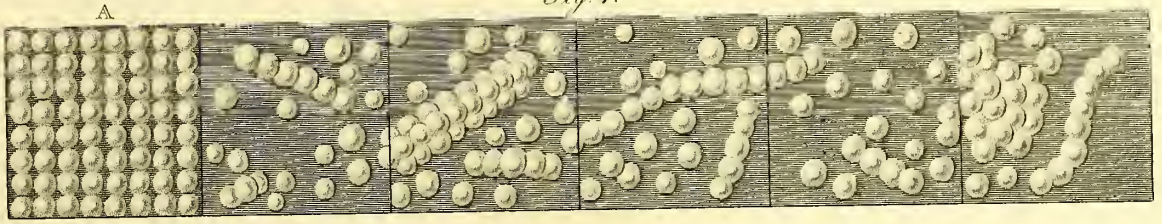


Fig. 3.

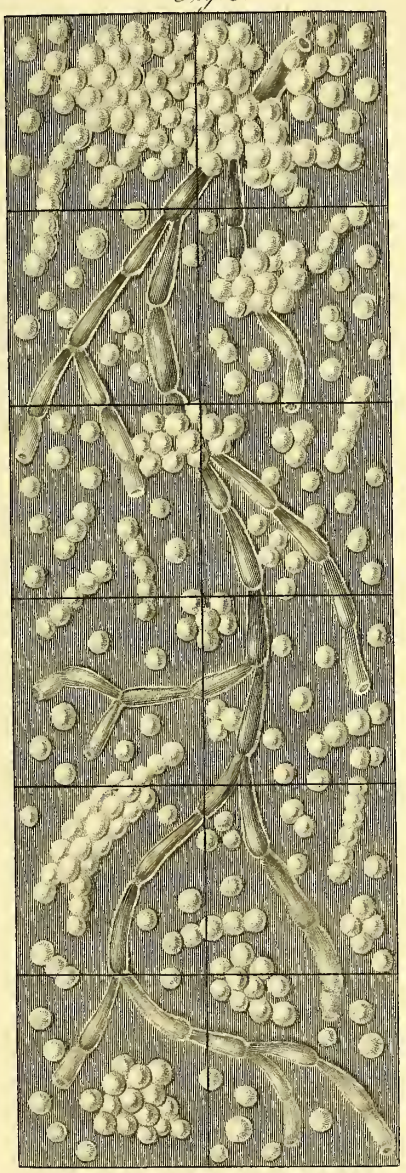


Fig. 4.

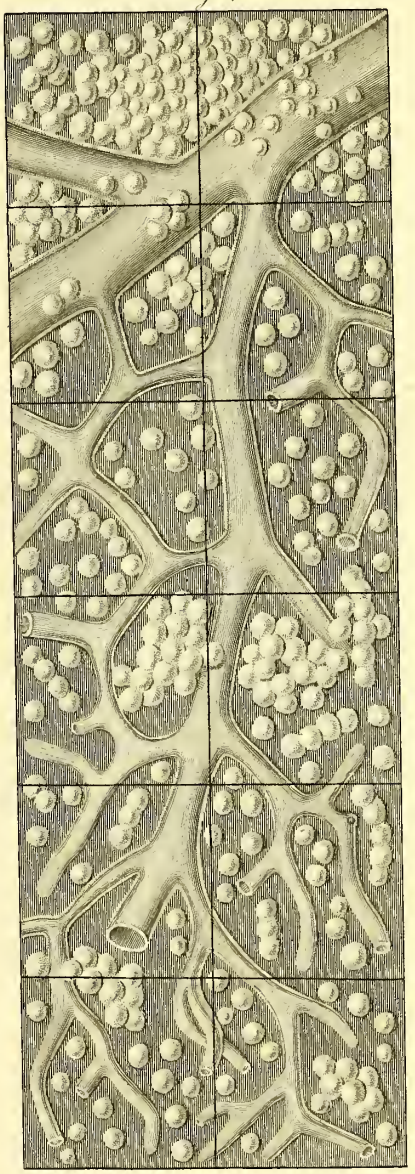
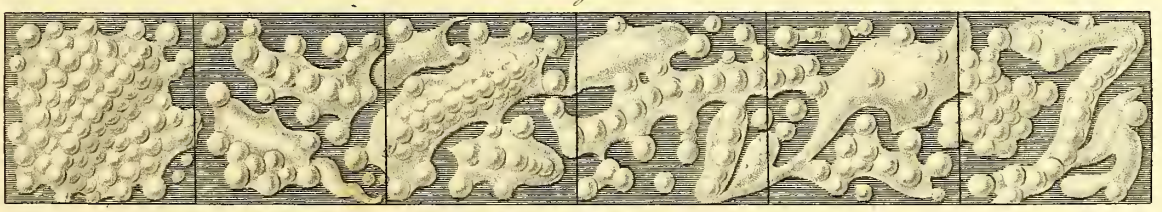


Fig. 2.



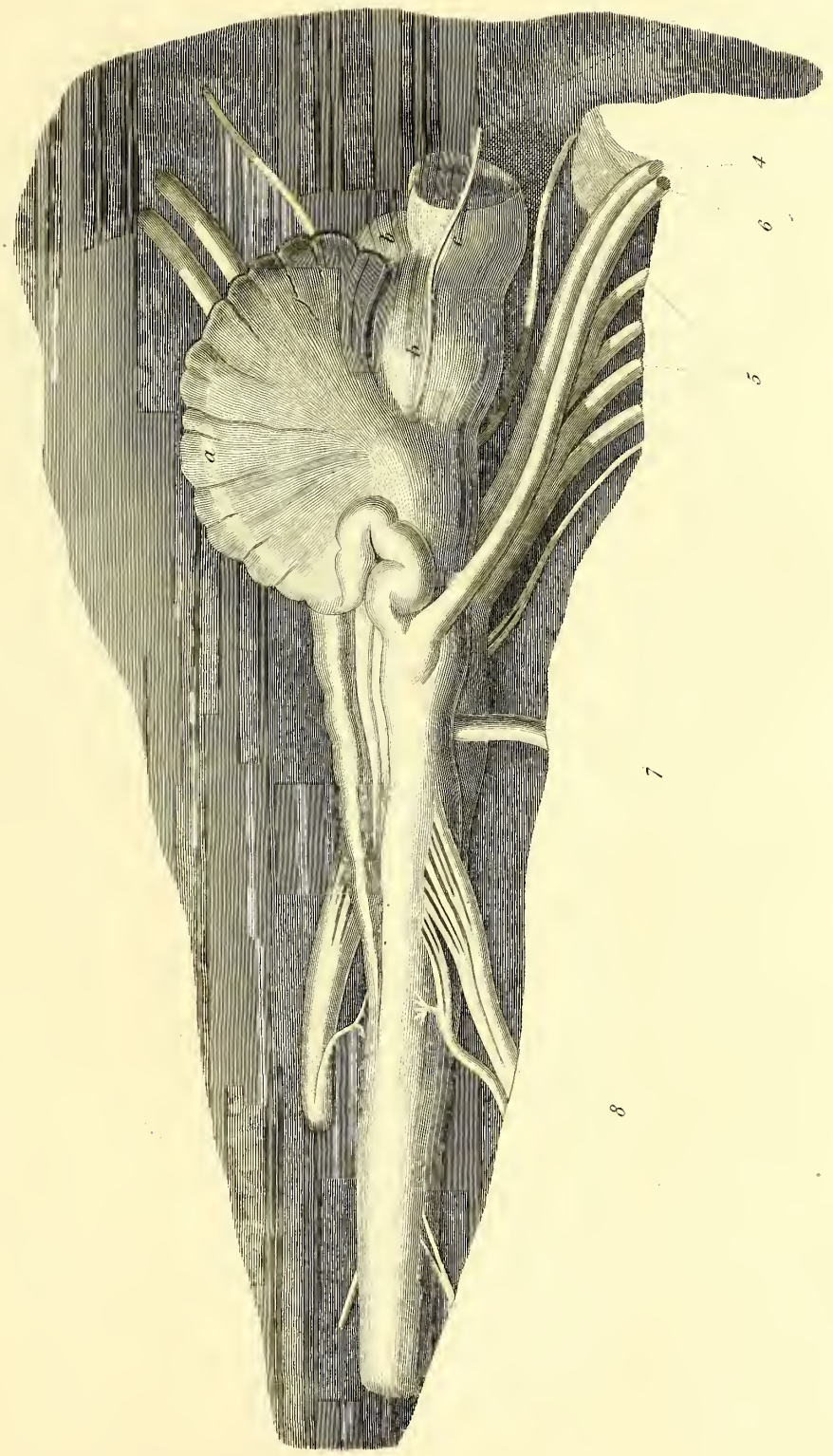
Franz Bauer del. *J. Basire sc.*

TAB. XIII.

LECTURE THIRD.

Side view of the brain of squalus maximus:—

a. Cerebellum.
b b. Two of the four tubercula.
c. A third tubercle mutilated.
3, 4, 5, 6, 7, 8. The different nerves corresponding to those of the human brain.



J. Hawship del.

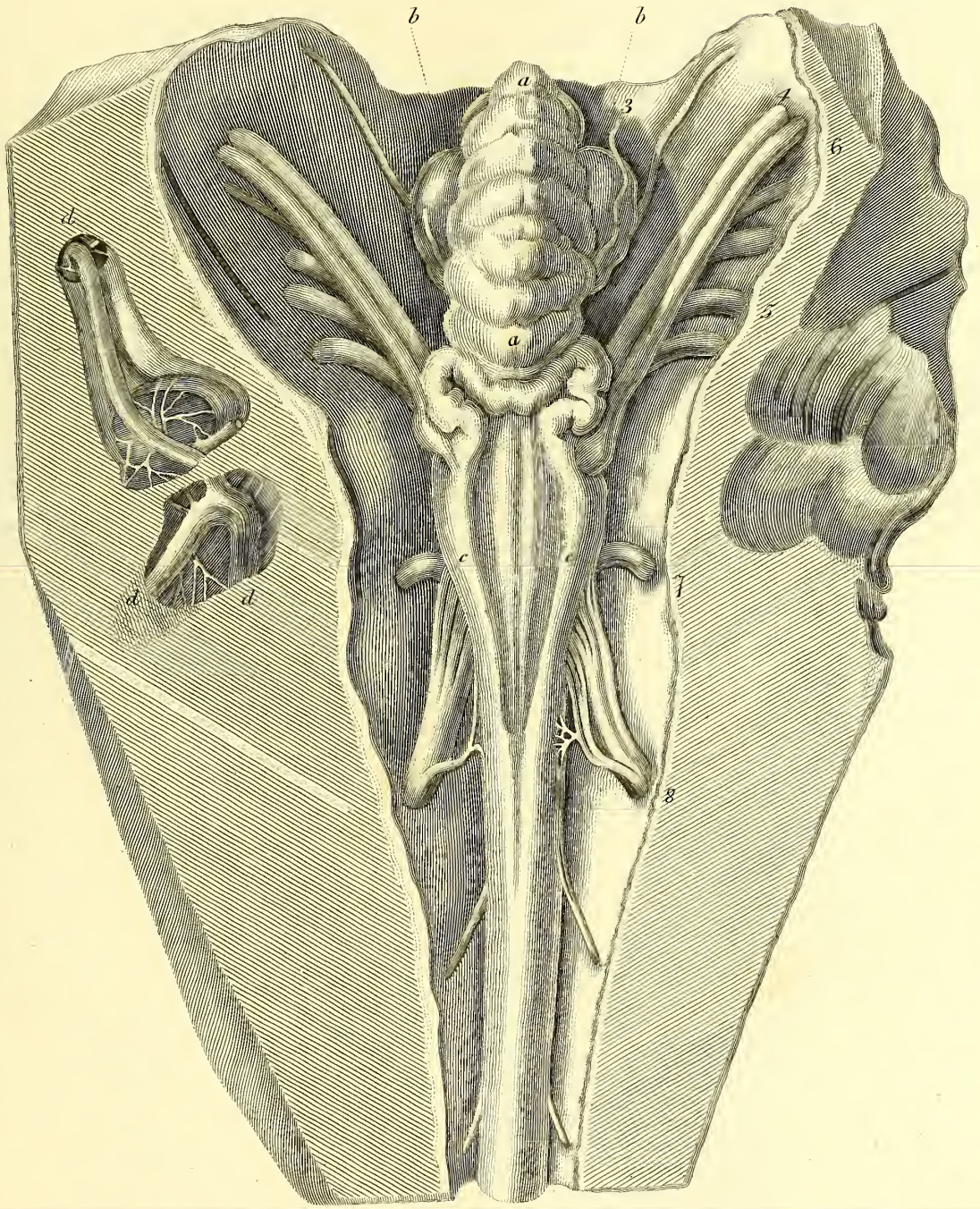
J. Basire sc.

TAB. XIV.

LECTURE THIRD.

Another view of the same brain, the letters corresponding with those on the same parts in the former plate, except c c, a cavity which corresponds to the fourth ventricle of the human brain.

TAB. XIV.



J. Howship del.

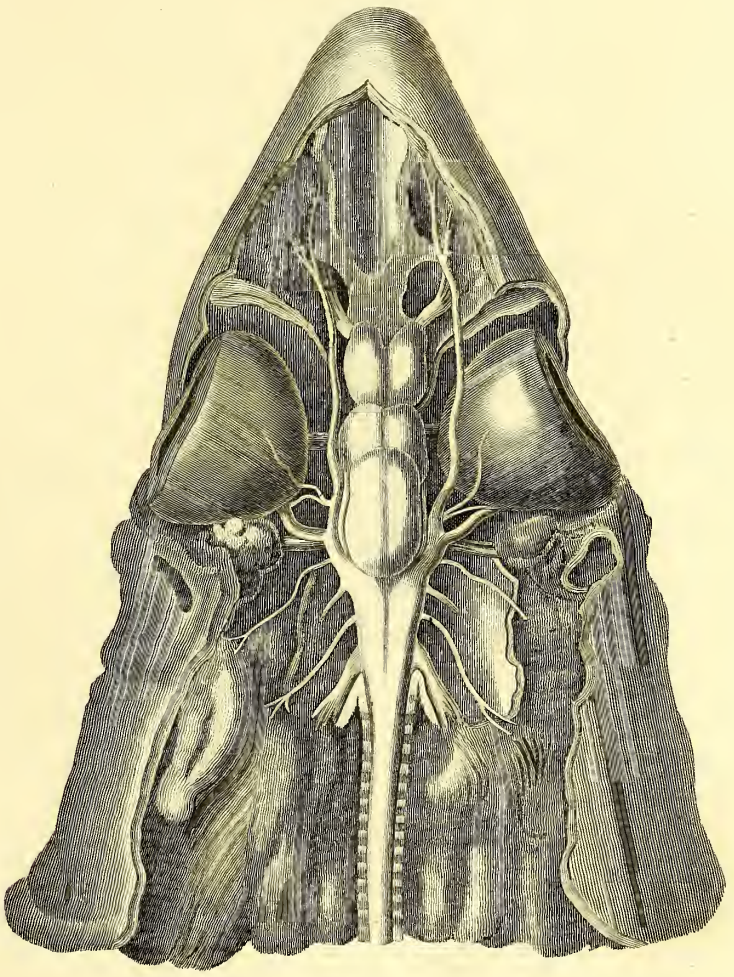
P. Basire sc.

TAB. XV.

LECTURE THIRD.

The brain of the squalus acanthias, to show such parts as were wanting in the brain of the squalus maximus.

TAB. XV.



J. Houshop del.

J. Basire sc.

TAB. XVI.

LECTURE THIRD.

Fig. 1. The phrenic nerve of a horse in its contracted state. Natural size.

Fig. 2. The same nerve, magnified.

Fig. 3. Another portion of the same nerve in the state of elongation. Natural size.

There are no plates belonging to the Fourth Lecture.

TAB. XVI.

Fig. 1.

Fig. 2.

Fig. 3.

Clift del. Basire fc.

TAB. XVII.

LECTURE FIFTH.

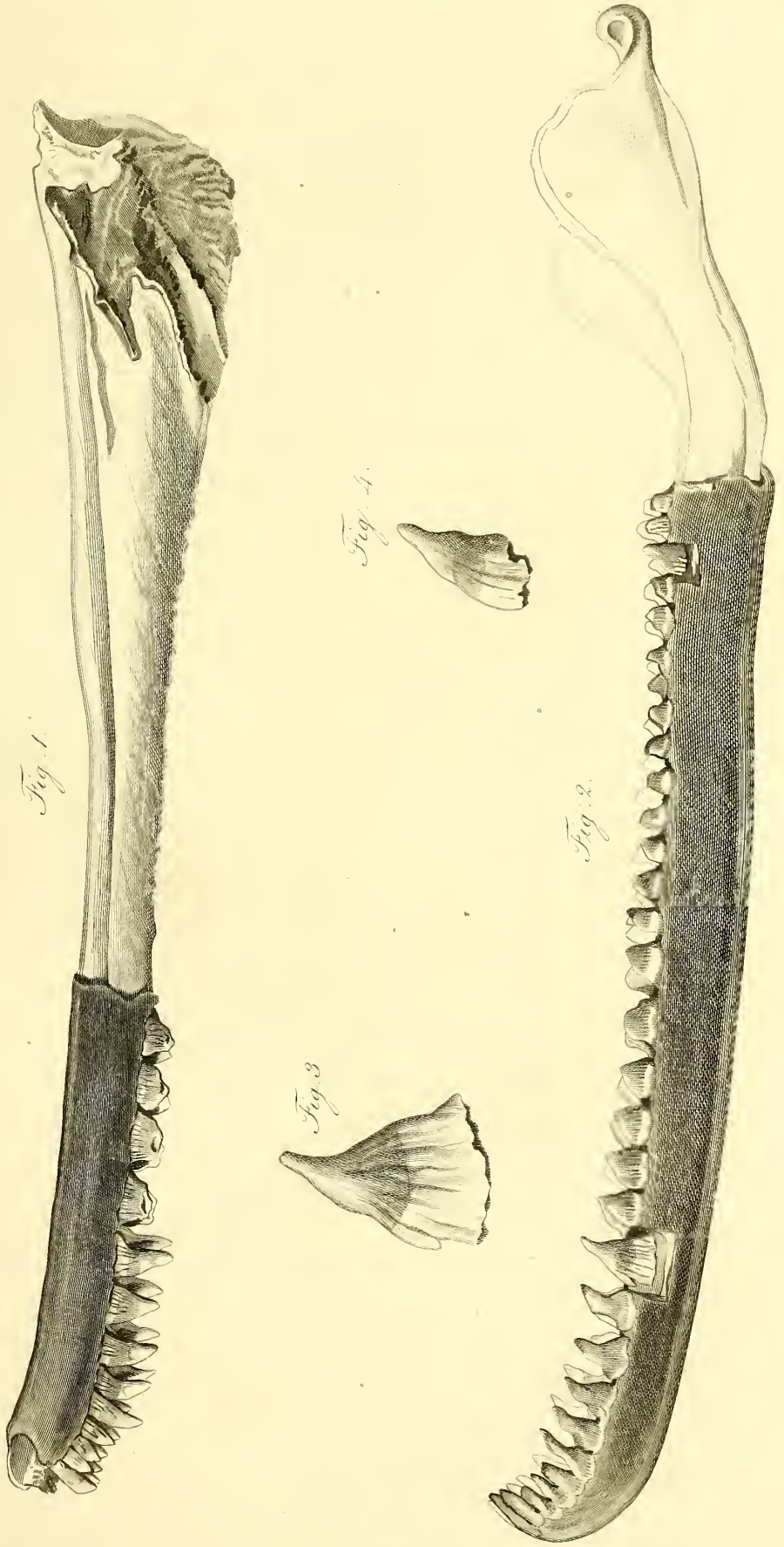
Fig. 1. The upper jaw of the delphinus gangeticus, on the scale of four inches to one foot.

Fig. 2. The under jaw, on the same scale.

Fig. 3. A single tooth of the natural size.

Fig. 4. A growing tooth of the natural size.

TAB. XVII.



W. Clift del.

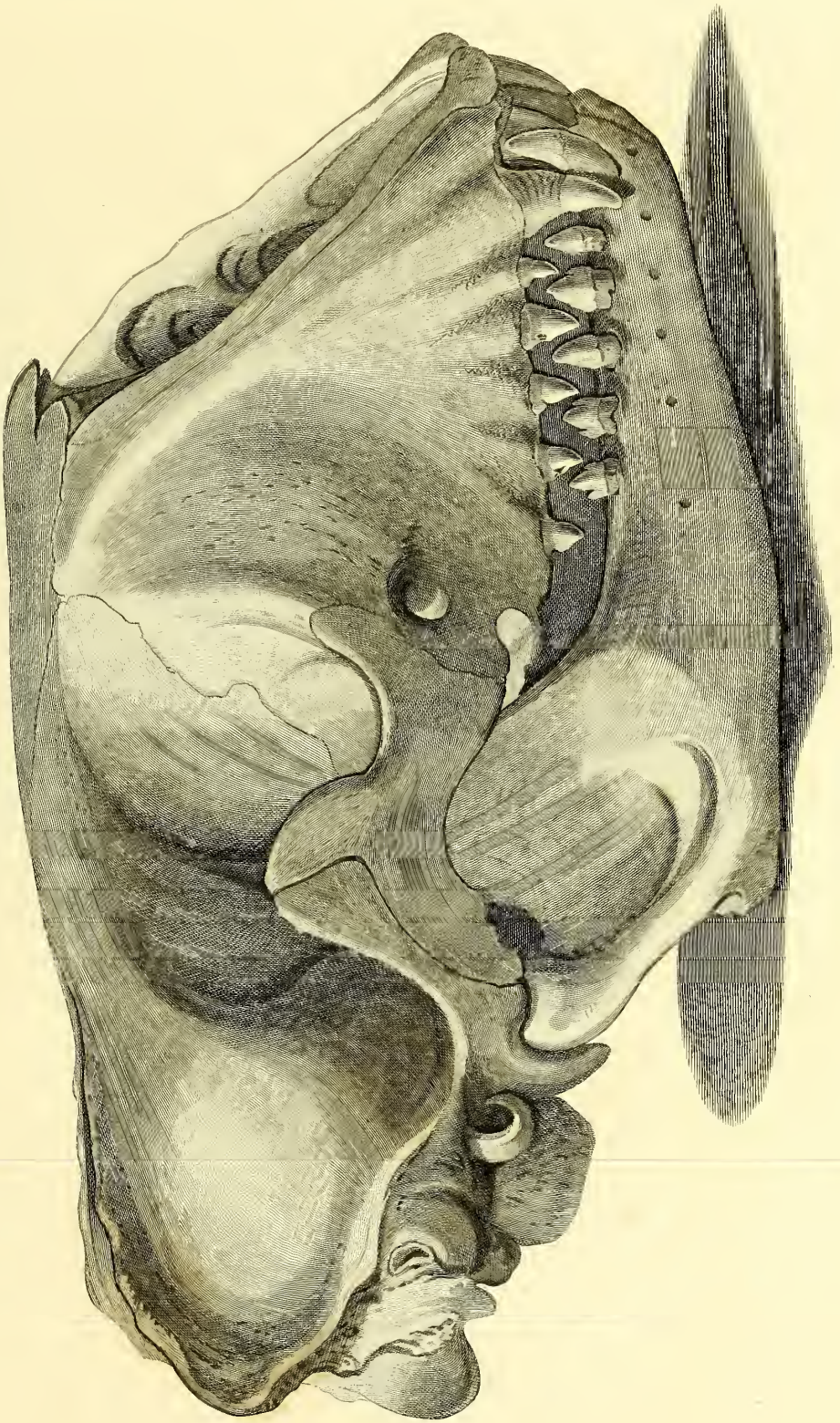
P. Basire. sc.

TAB. XVIII.

LECTURE FIFTH.

The skull of the large seal brought to England by Lord Anson from the South Seas; the scale eight inches to one foot.

TAB. XVIII.



Scale eight inches to a foot.

Wm Clift del.

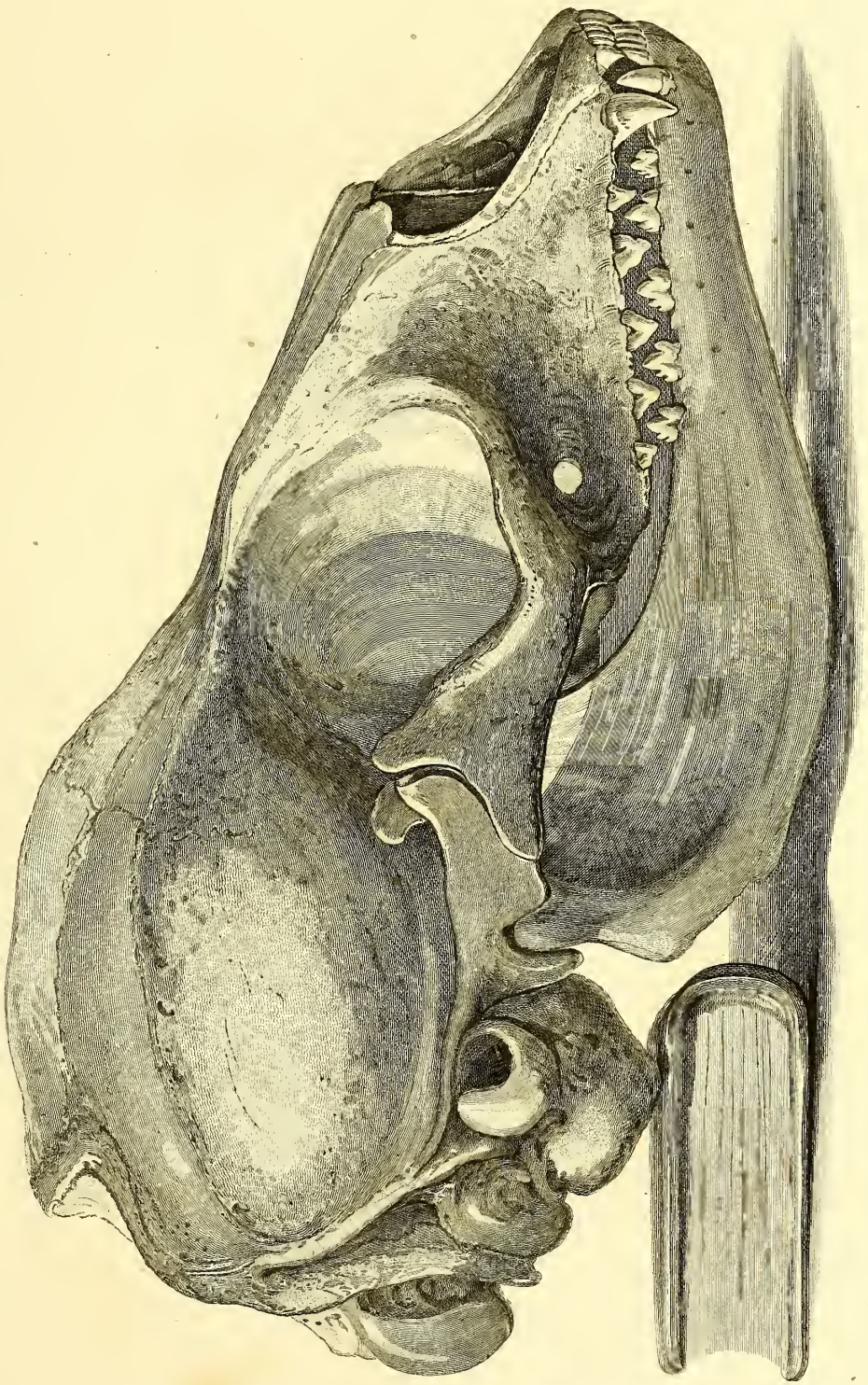
Js Basire sc.

TAB. XIX.

LECTURE FIFTH.

The skull of a seal which was said to have been met with every summer on the same rock, for thirty years, in the Orkney Isles. Natural size.

TAB. XIX.



Natural size

Wm. Clift del.

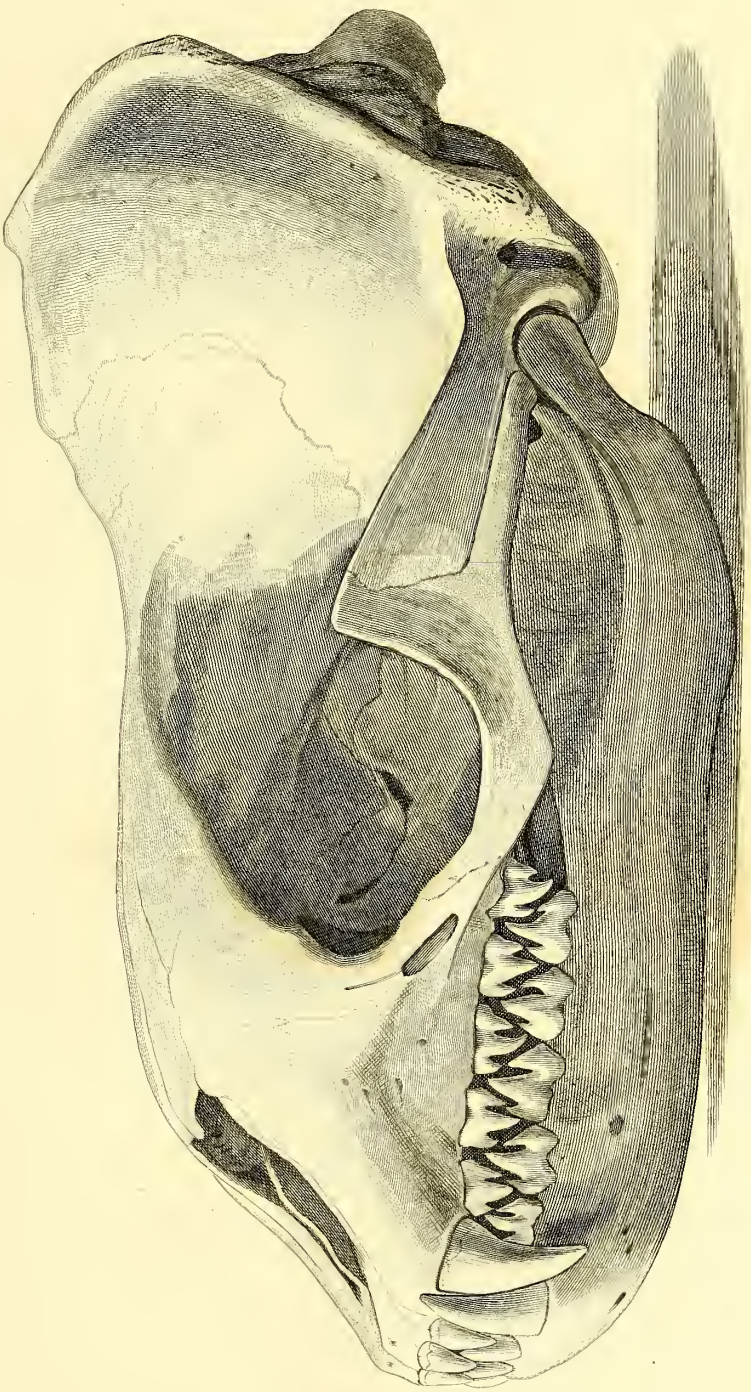
Js. Basire sc.

TAB. XX.

LECTURE FIFTH.

The skull of a seal from New Georgia, near the ice, towards the South pole. Natural size.

TAB. XX.



Scale, half an inch to an inch.

W.m Clift del.

J.s Basire sc

TAB. XXI.

LECTURE FIFTH.

Fig. 1. A side view of the skull of the dugong, showing the organ of hearing, and one of the milk tusks exposed through its whole length. Scale half an inch to one inch.

Fig. 2. A longitudinal section of the tusk. Scale half an inch to one inch.

Fig. 3. An outline of the dugong's skull, taken from Cuvier's work on that subject.

TAB. XXI.

W. H. Clift del.

P. Basire sc.

TAB. XXII.

LECTURE FIFTH.

Fig. 1. The basis of the skull of the dugong, to show the molares and milk tusks.

Fig. 2. The appearance of a permanent tusk in situ.

Fig. 3. The longitudinal section of a permanent tusk; of the natural size.

Fig. 1.

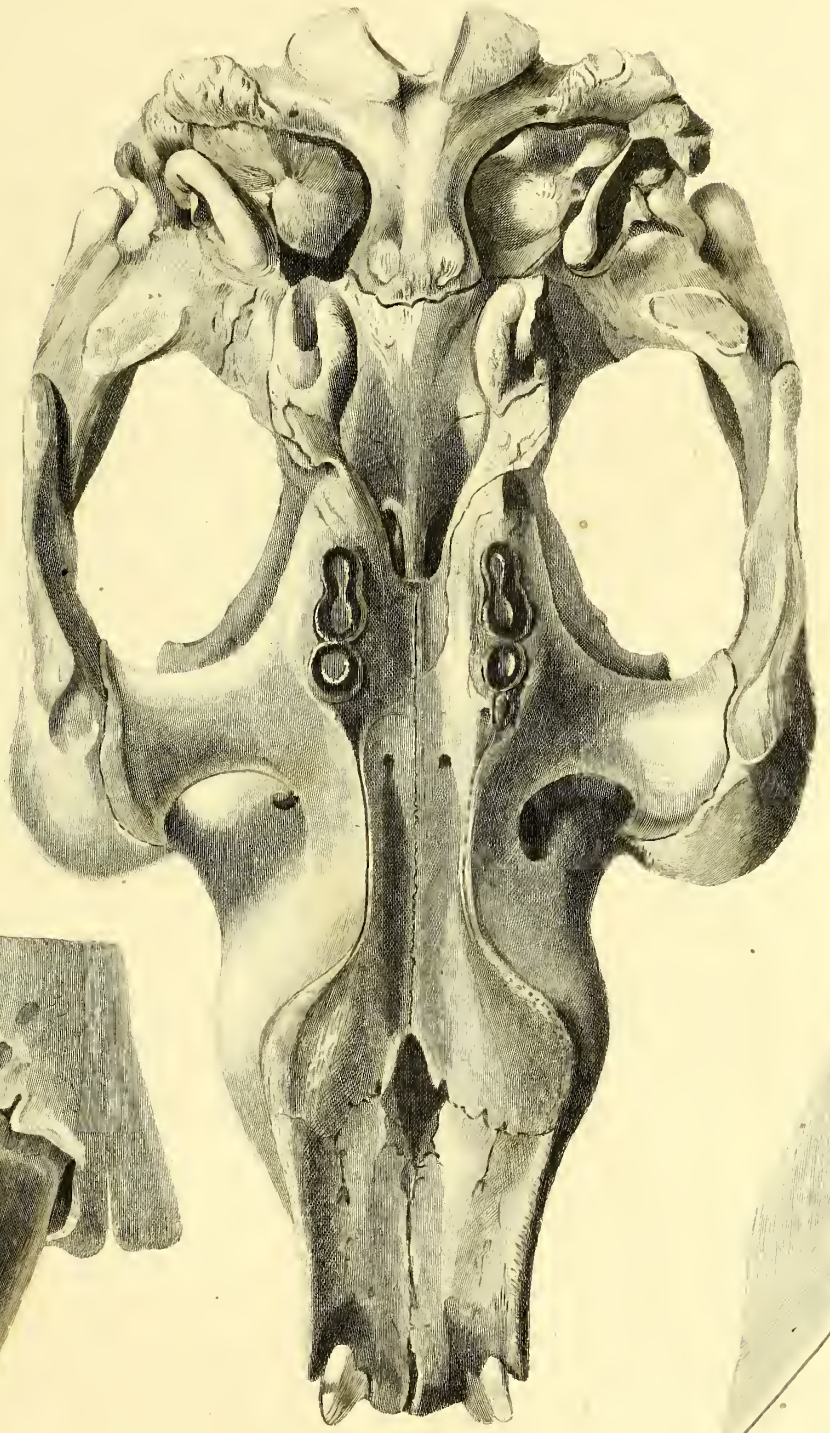


Fig. 3.

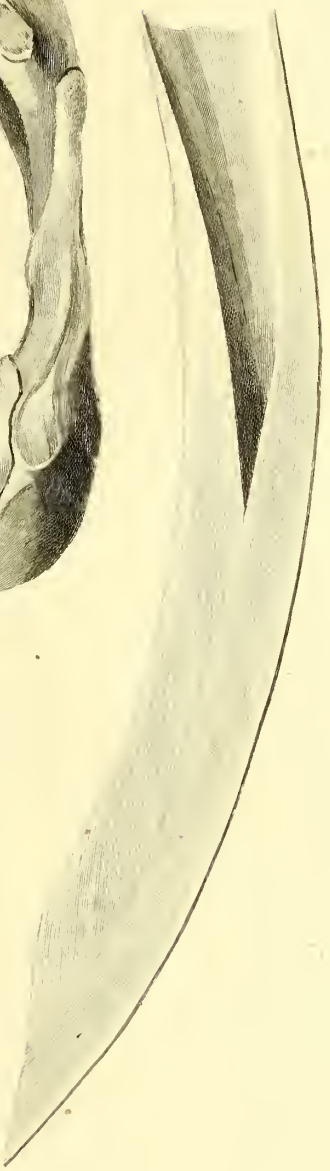


Fig. 2.

W. H. Clift del.

J.s Basire sc.

TAB. XXIII.

LECTURE FIFTH.

Fig. 1. The lower jaw of the skull, Tab. XXI. Scale half an inch to one inch.

Fig. 2. The remains of two incisores. Scale half an inch to one inch.

Fig. 3. Two incisores, after being shed. Natural size.

Fig. 4. Section of a molares. Natural size.

Fig. 4.

Fig. 1.

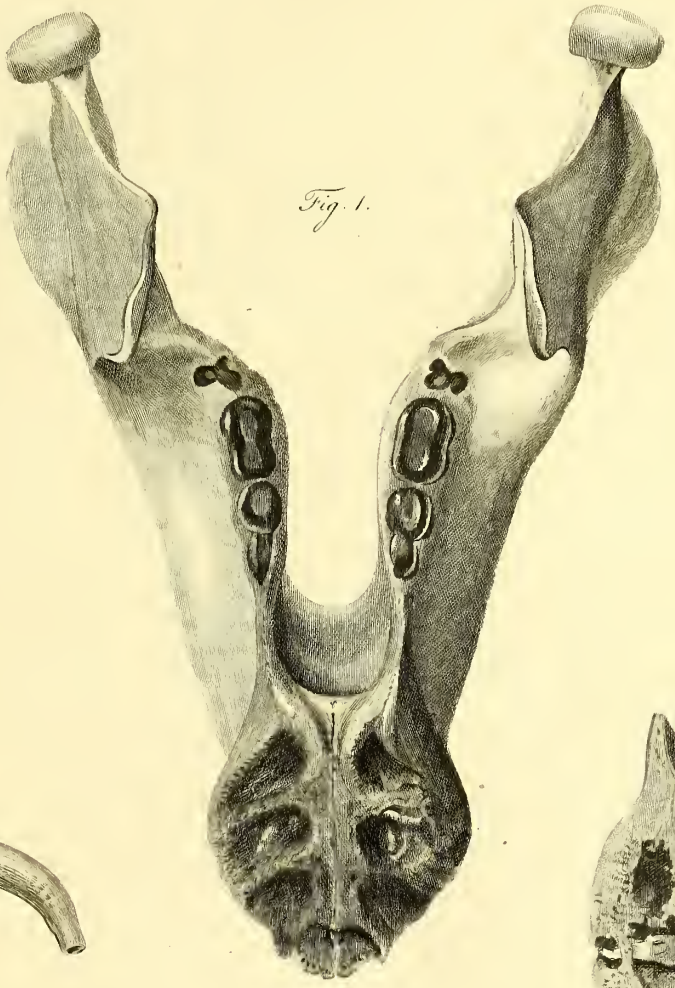


Fig. 2.

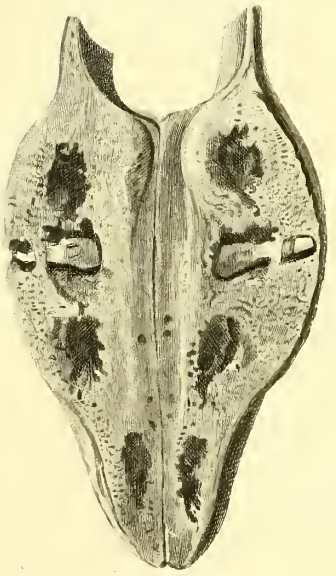


Fig. 3.

W. H. Clift del.

J.s Basire sc.

TAB. XXIV.

LECTURE FIFTH.

Fig. 1. The gastric glands in one mass, and the œsophageal glands exposed. Of the natural size.

Fig. 2. The tongue in situ, only loose for half an inch at the point; two nipple-like processes at the root; the papillæ at the tip for the sense of taste. Natural size.

Fig. 3. The cæcum; on a scale of half an inch to an inch.

TAB. XXIV.

Fig. 1.

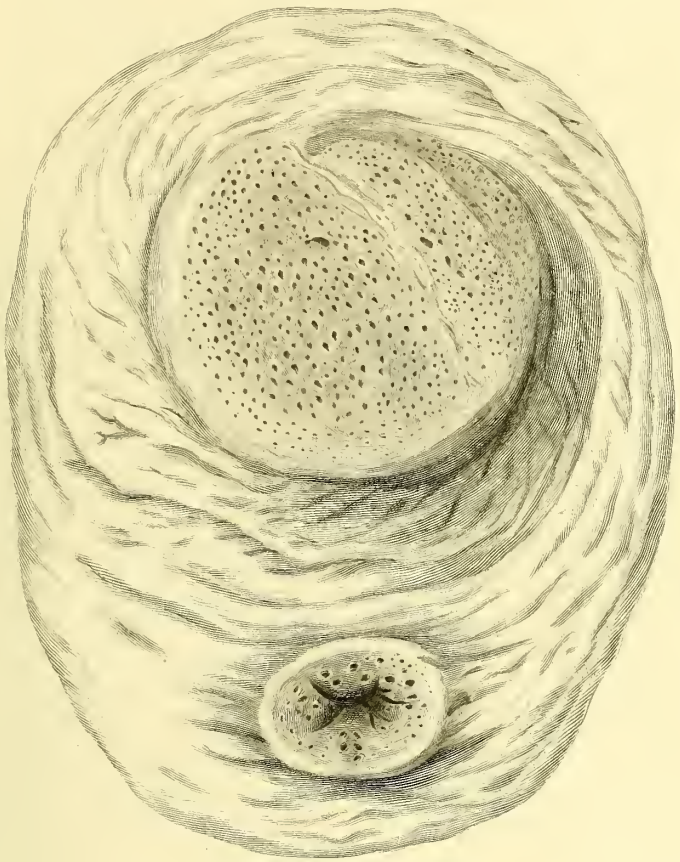


Fig. 2.

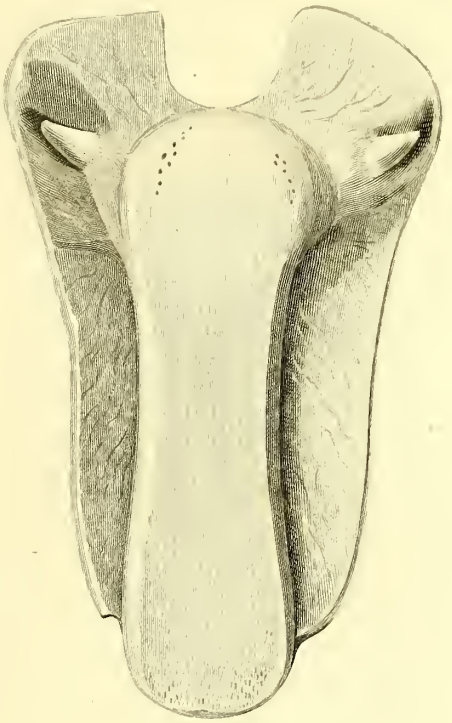
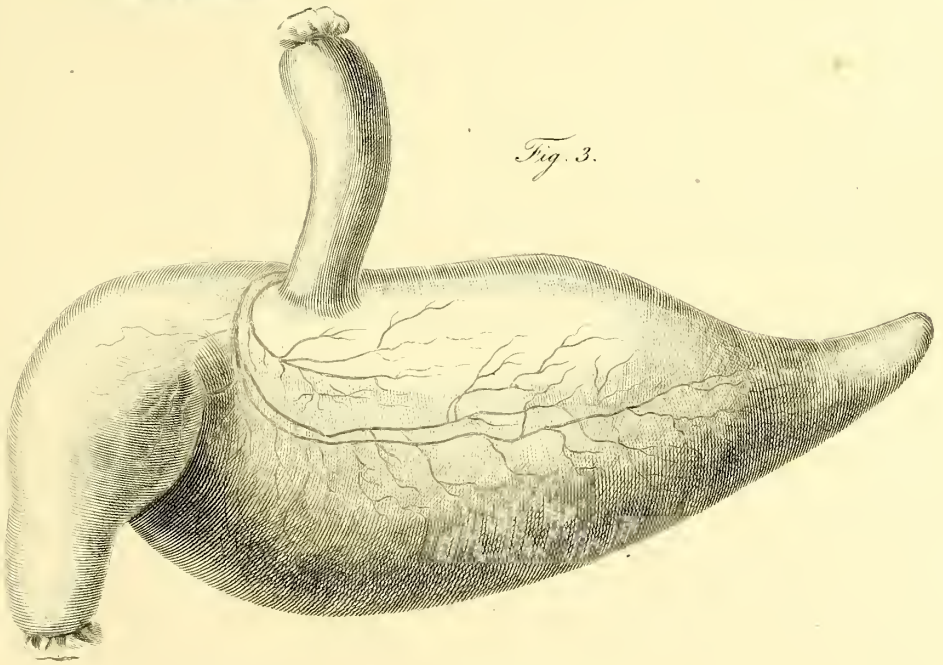


Fig. 3.

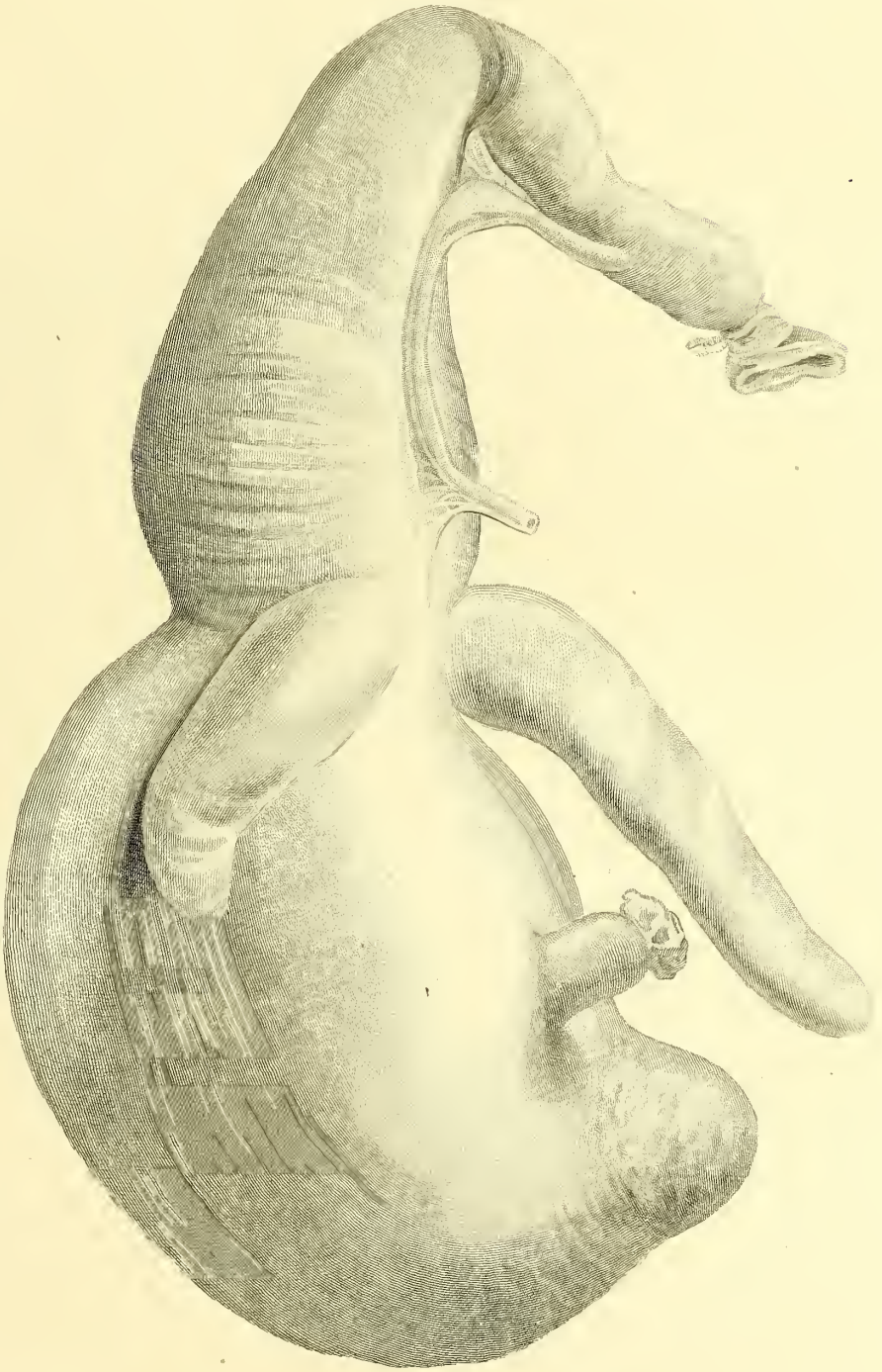


Wm. Clift del. *J.s Basire sc.*

TAB. XXV.

LECTURE FIFTH.

The stomach of the dugong distended, to show the prominent part of the cardiac portion containing the gastric glands; the contraction between the cardiac and pyloric portion; and the two cæca that communicate with the pyloric portion; the thickening at the pylorus, and the termination of the ducts of the liver in the duodenum. On a scale of half an inch to one inch.



Wm Clift del.

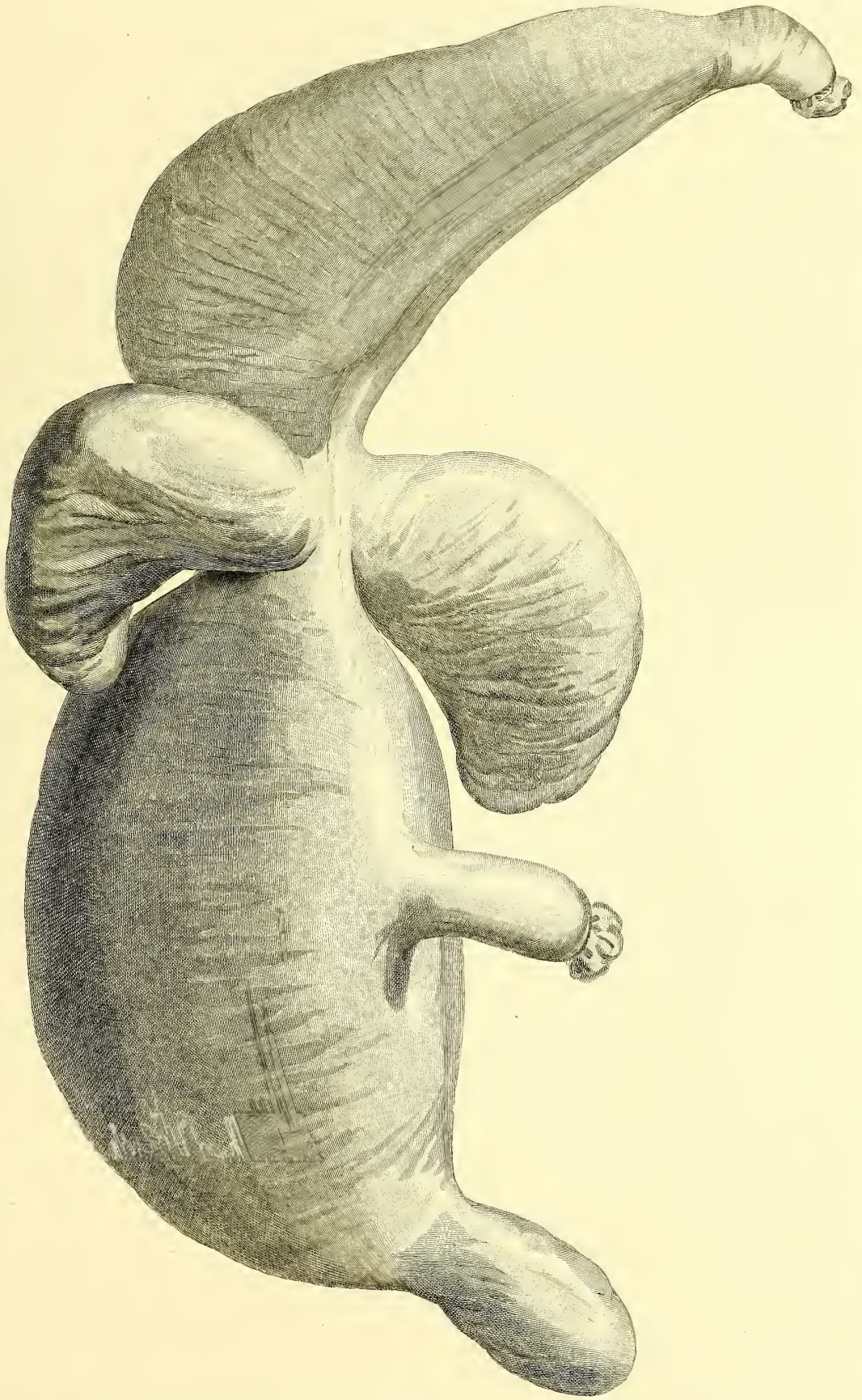
J. Basire sc.

TAB. XXVI.

LECTURE FIFTH.

The stomach of the manatee distended; the scale of half an inch to an inch.

TAB. XXVI.



Scale half an Inch to an Inch

W^m Clift del 1821.

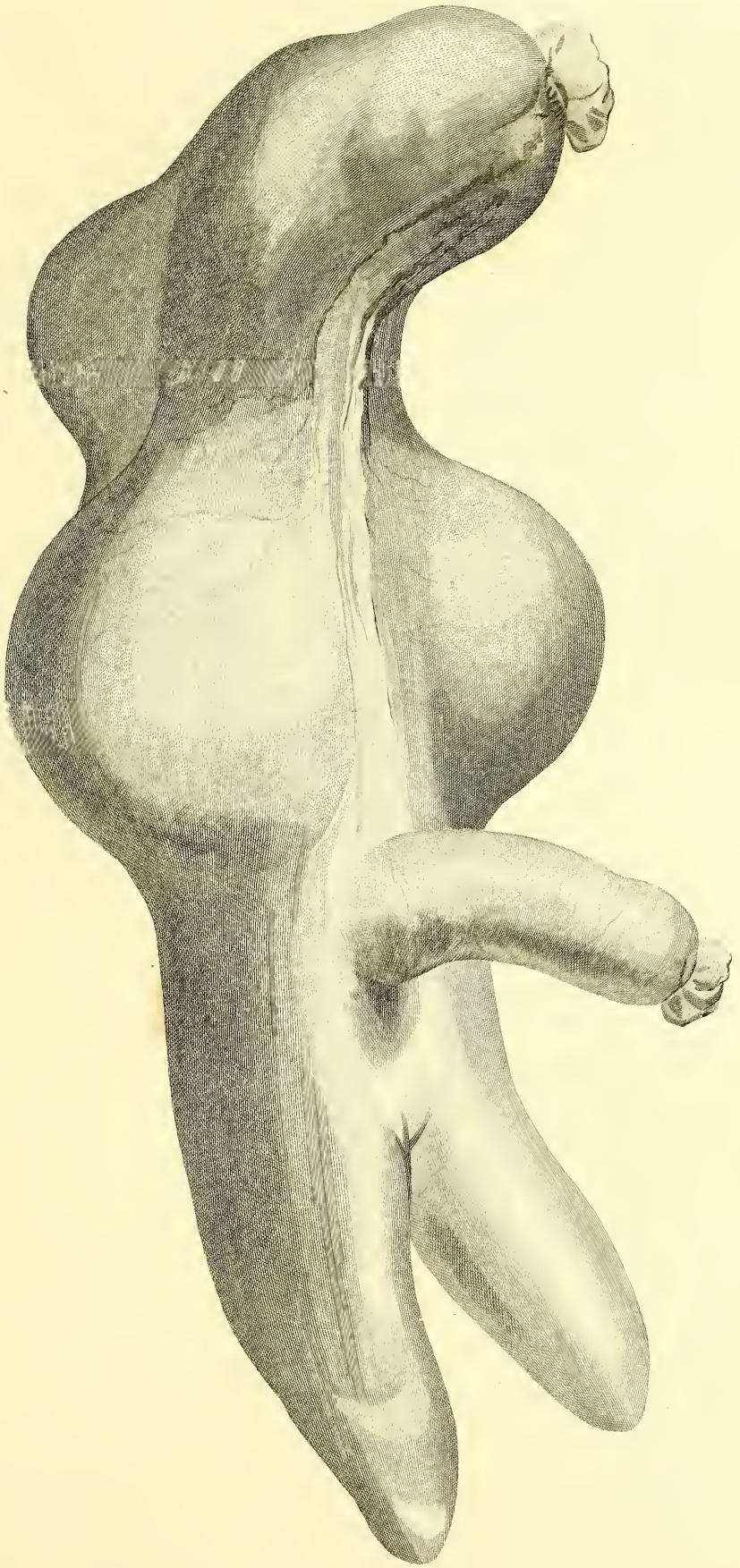
J^s Basire sc.

TAB. XXVII.

LECTURE FIFTH.

The cæcum of the manatee; of the natural size.

TAB. XXVII.



Natural size.

Wm. Clift del.

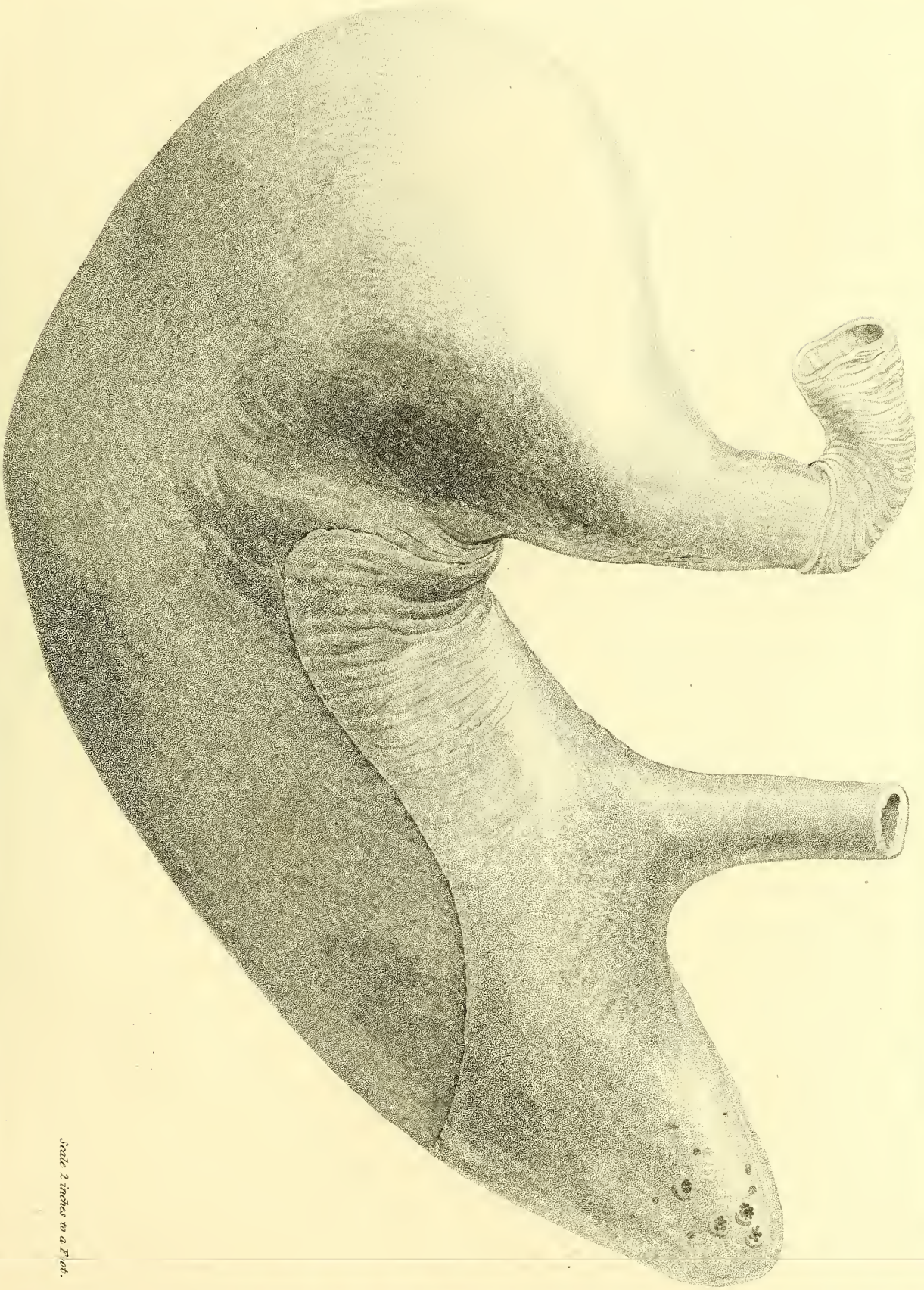
J.s Basire sc.

TAB. XXVIII.

LECTURE FIFTH.

The stomach of the rhinoceros from Sumatra, inverted to show its internal surface; on a scale of two inches to a foot.

TAB. XXVIII.



Scale 2 inches to a Foot.

Wm Clift del.t

Js Basire sc.

TAB. XXIX.

LECTURE FIFTH.

Fig. 1. The crop and gizzard of the Java swallow, magnified two diameters.

Fig. 2. The lower part of the crop, magnified fifteen diameters.

Figs. 3, 4, 5, 6, 7. Portions, magnified fifty diameters.

Fig. 8. The same parts in the common swallow, magnified fifteen diameters.

Fig. 9. The same glands in the blackbird, magnified in the same degree.

TAB. XXIX.

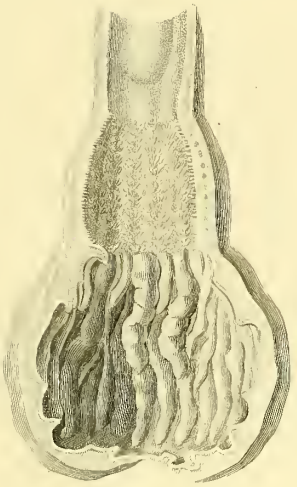


Fig. 1.

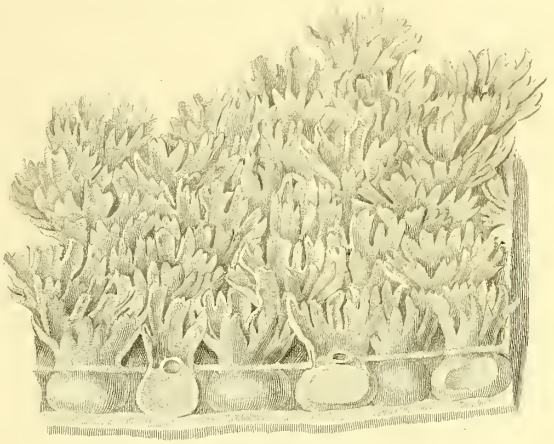


Fig. 2.

Fig. 3.

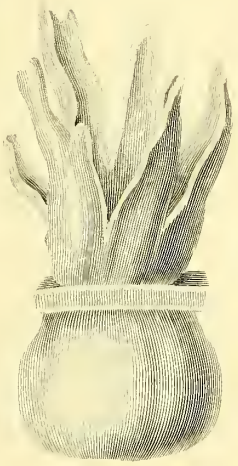


Fig. 4.

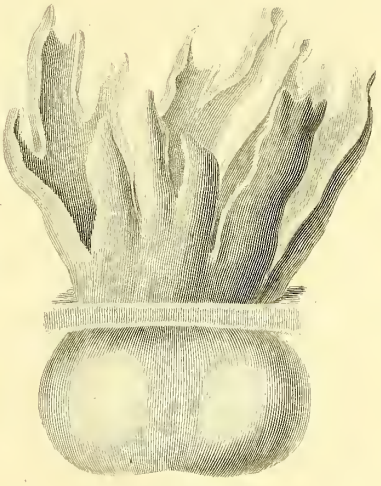


Fig. 5.

Fig. 6.

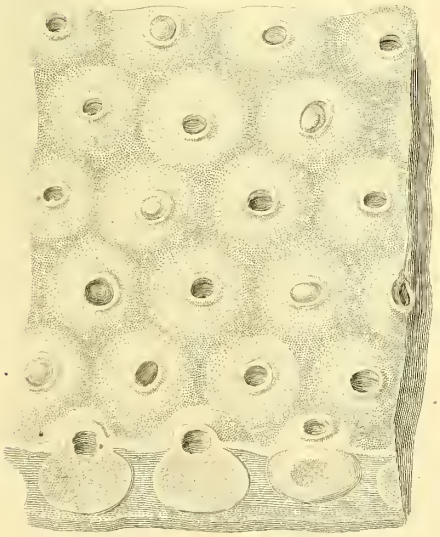


Fig. 8.

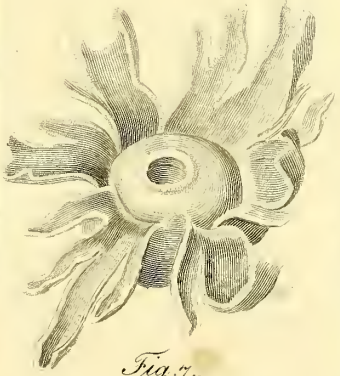


Fig. 7.

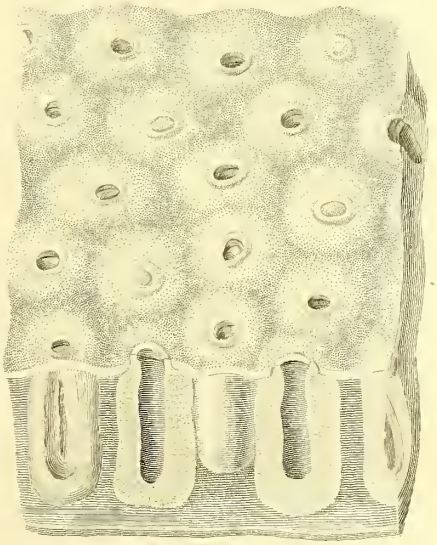


Fig. 9.

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J.B. Basire Sc.

TAB. XXX.

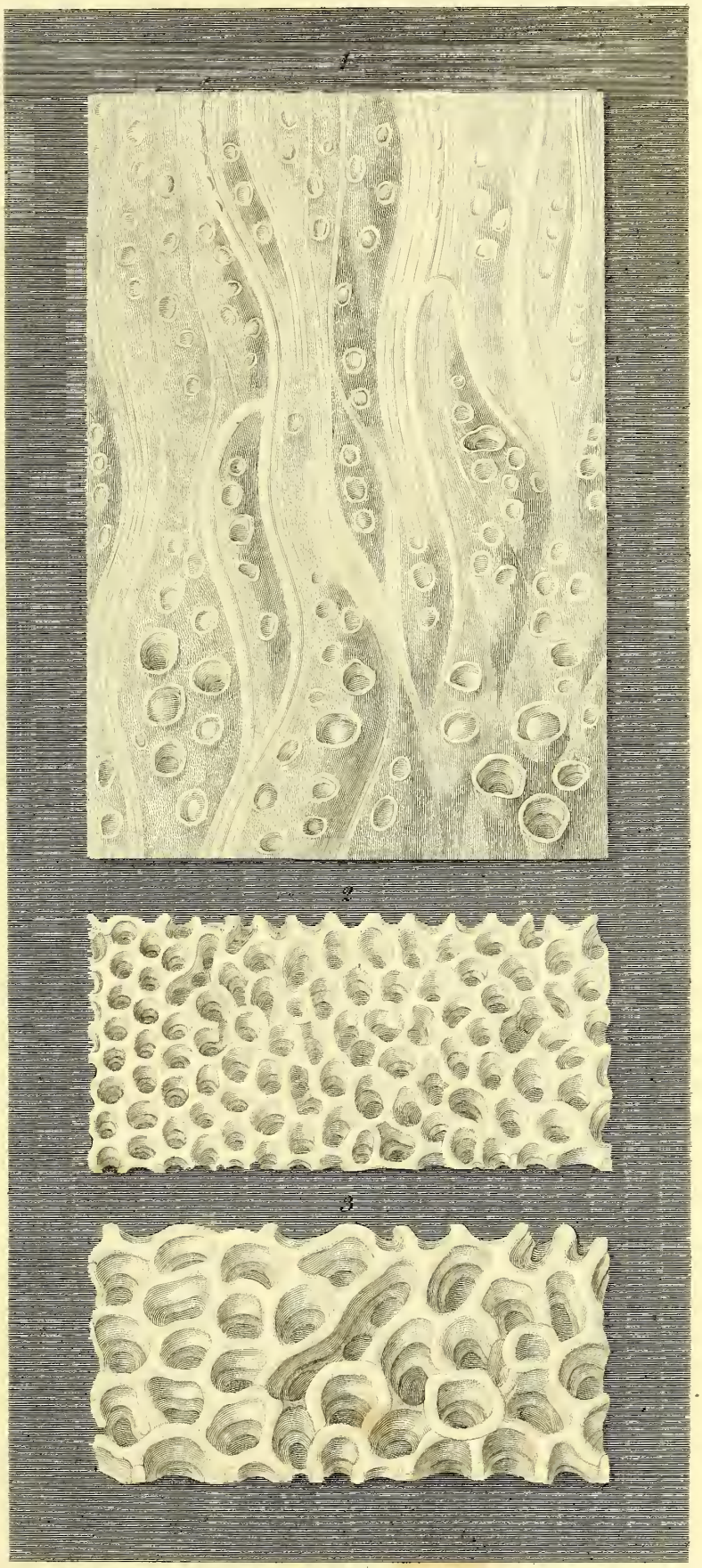
LECTURE FIFTH.

Upper portion. The gastric glands situated in the human œsophagus, magnified fifteen times.

Middle portion. The surface of the cardia, magnified fifteen times.

The lower portion. The same parts, magnified thirty times.

TAB. XXX.



Franz Bauer. del.

F.s Basire sc.

TAB. XXXI.

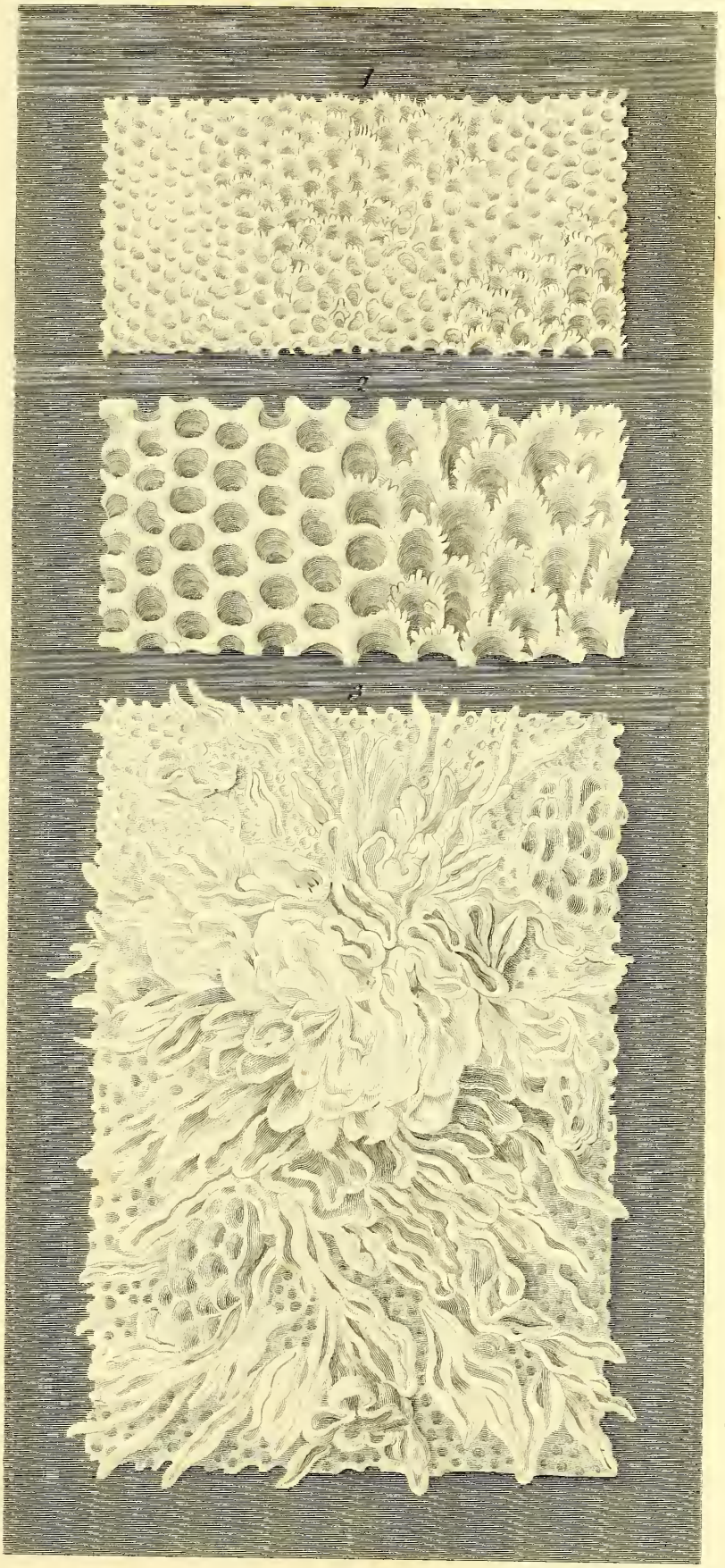
LECTURE FIFTH.

The upper portion. The internal membrane of the pylorus of the human stomach, magnified fifteen times.

The middle portion. The same surface, magnified thirty times.

The lower portion. The internal membrane of the duodenum, magnified fifteen times.

TAB. XXXI.



Franz Bauer, del.

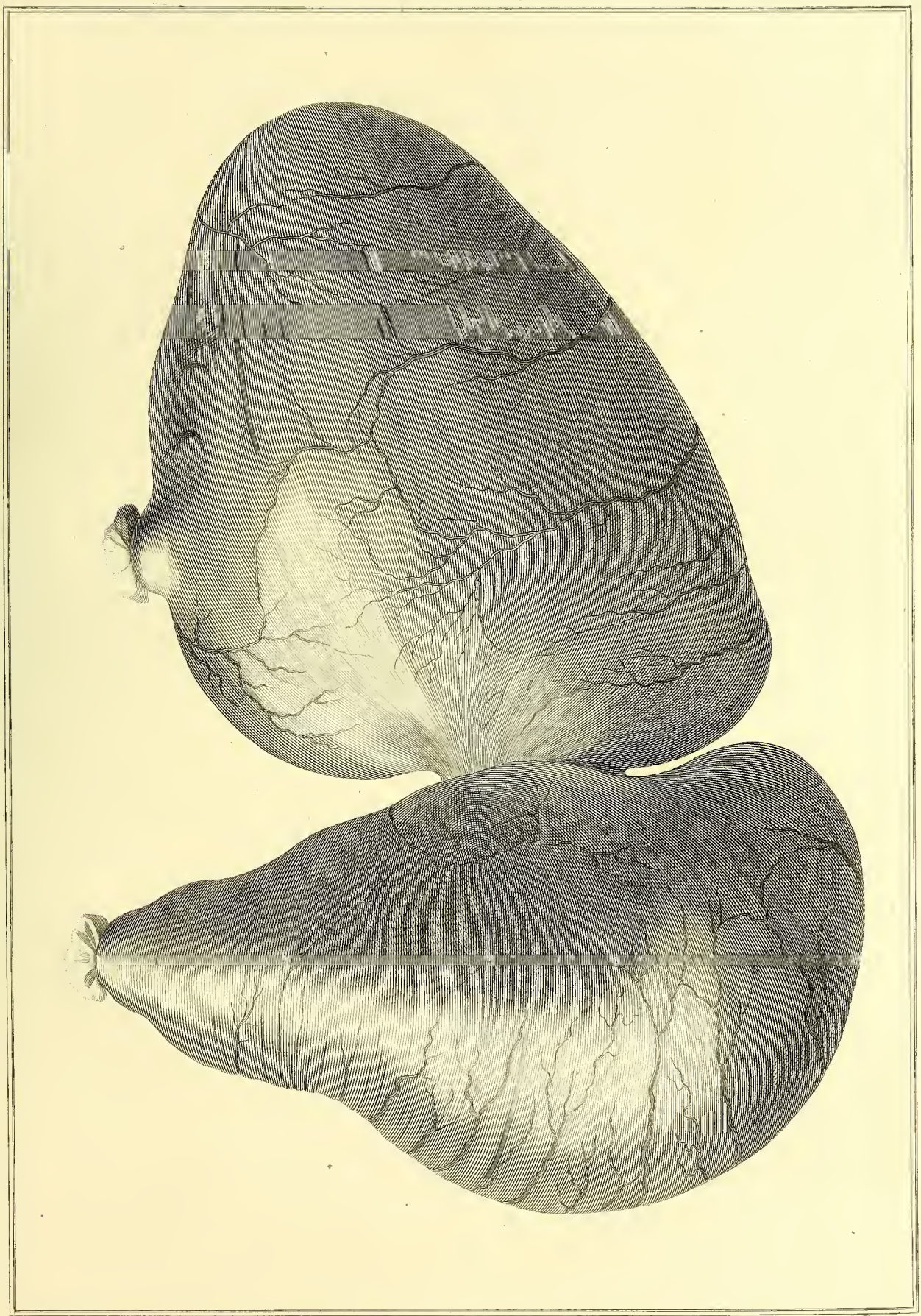
I.s Basire, sc.

TAB. XXXII.

LECTURE FIFTH.

The human stomach, in which the contraction between the cardiac and the pyloric portions had become permanent. Natural size.

TAB. XXXII.



W.m Clift del.

P. Basire sc.

TAB. XXXIII.

LECTURE FIFTH.

Fig. 1. Section of the spleen of a child five years old, injected to show portions of injection deposited from the arteries, resembling the corpuscles met with in the turgid state of that organ. Magnified eight diameters.

Fig. 2. The lymphatics passing between the villi of the cardiac portion and the muscular coats of the stomach. Magnified eight diameters.

Figs. 3. and 4. Portions of lymphatic vessels. Magnified four hundred times.

Fig. 5. The globules of the blood in the skate in its perfect state, and breaking down, showing the nucleus. Magnified four hundred diameters.

Fig. 6. Salts found crystallized in the skate's blood, in its decomposed state. Magnified two hundred diameters.

Fig. 1.

Fig. 3.

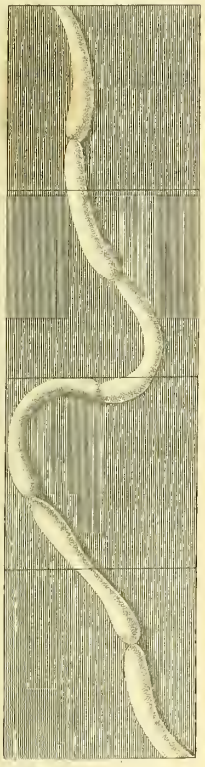


Fig. 2.

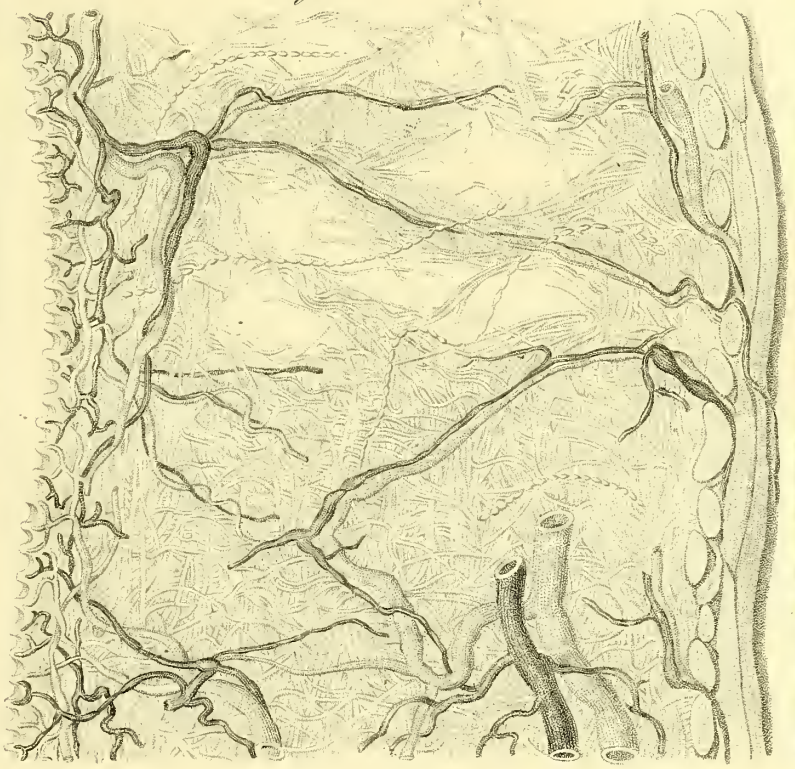


Fig. 4.

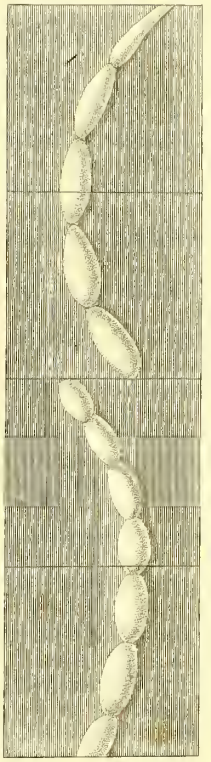


Fig. 5.

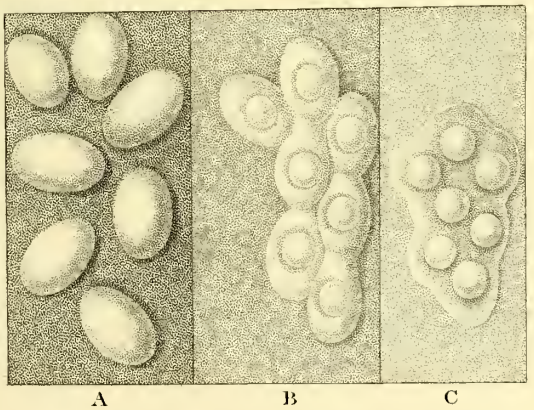
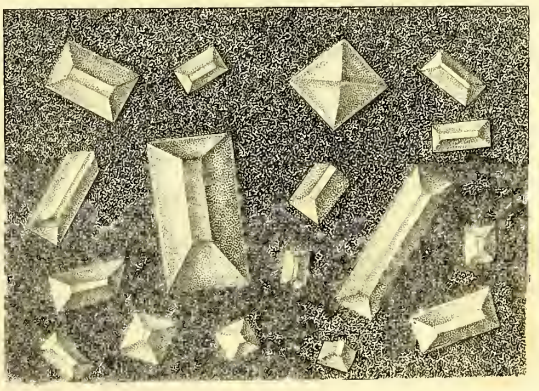


Fig. 6.



Franz. Bauer del.

Js. Basire sc.

TAB. XXXIV.

LECTURE FIFTH.

The human spleen and stomach in their relative situation, from a lad fifteen years of age. Natural size.

A. The vas breve of the ancients, the branches of which, collected from the cardiac extremity of the stomach, form a common trunk, which opens into the splenic vein: the deeper seated branches in the coats of the stomach receive the terminations of the lymphatic vessels.

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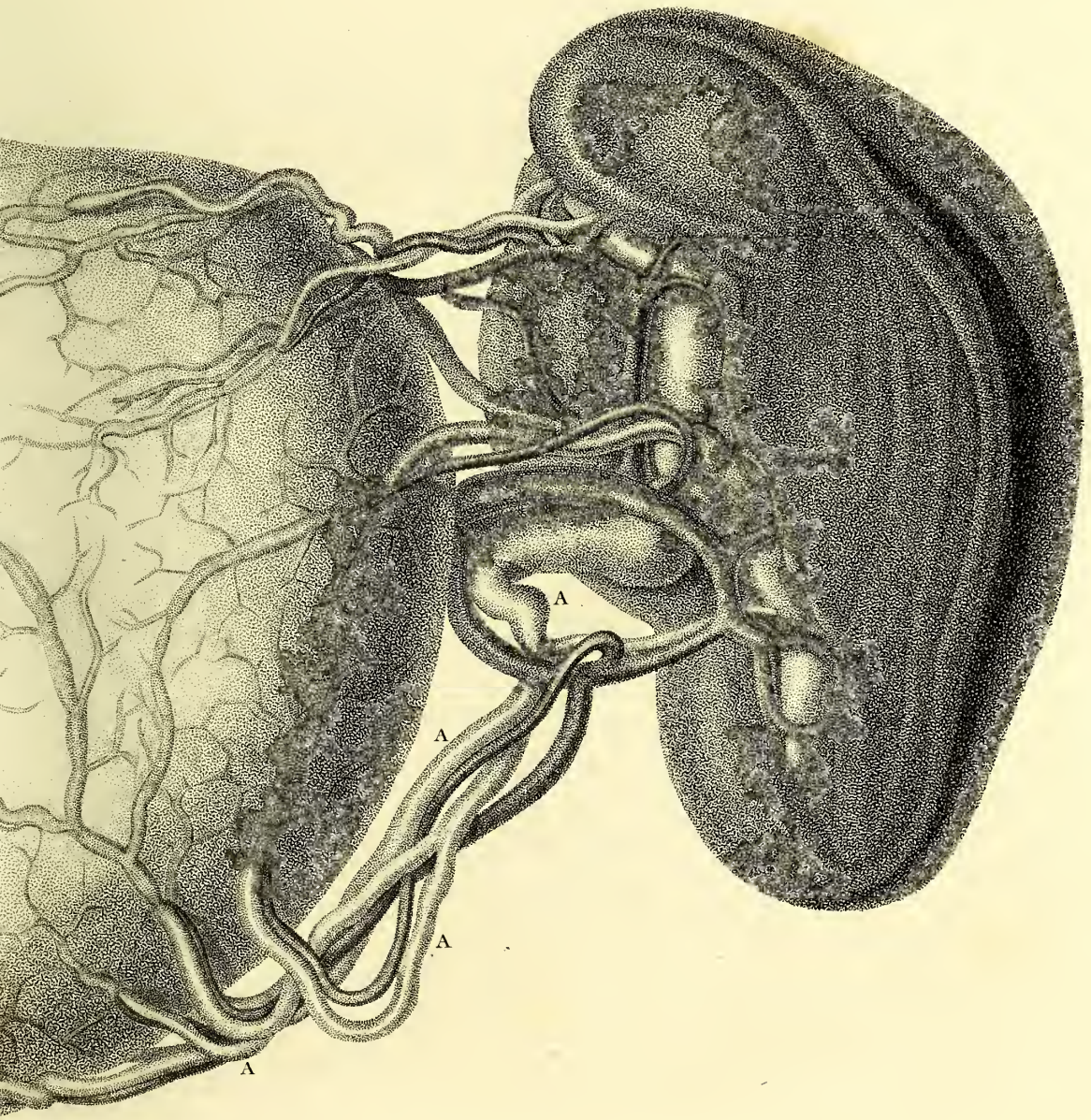


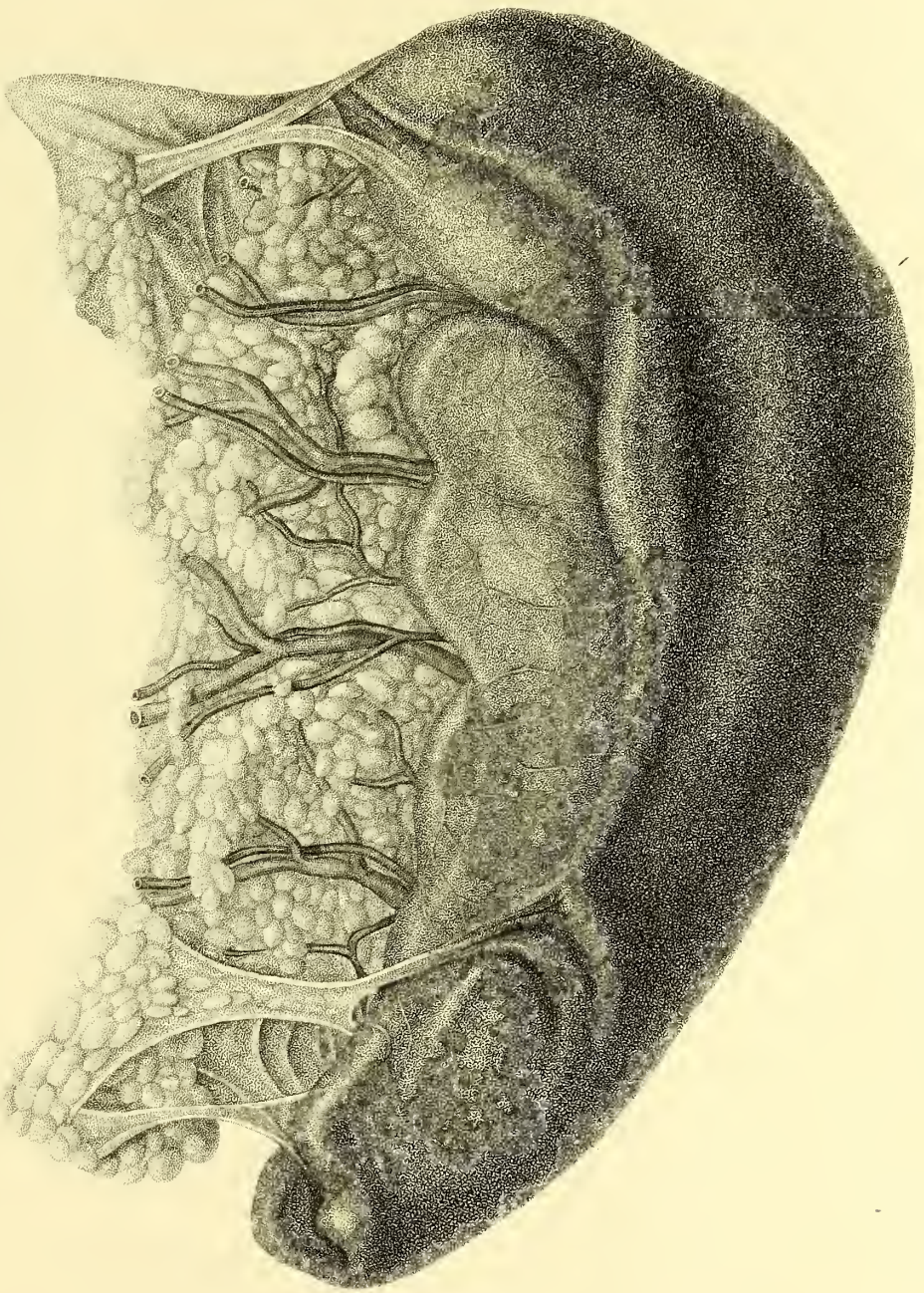
P.s Basire sc.

TAB. XXXV.

LECTURE FIFTH.

The human spleen, of the natural size, from a man forty-eight years of age: it shows the arteries and veins entering into its substance close together, the theca in which they were enclosed being removed.

TAB. XXXV.



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TAB. XXXVI.

LECTURE FIFTH.

Fig. 1. A section of the spleen of the natural size, the cells having emptied themselves.

Fig. 2. The same section, magnified eight diameters. A vein having been laid open in making the section shows lateral openings into it, peculiar to the veins of this organ.

Fig. 3. The same section, after three days' immersion in distilled water ; the cells filled with mucus.

Fig. 4. The same, magnified eight diameters.

TAB. XXXVI.

Fig. 1.

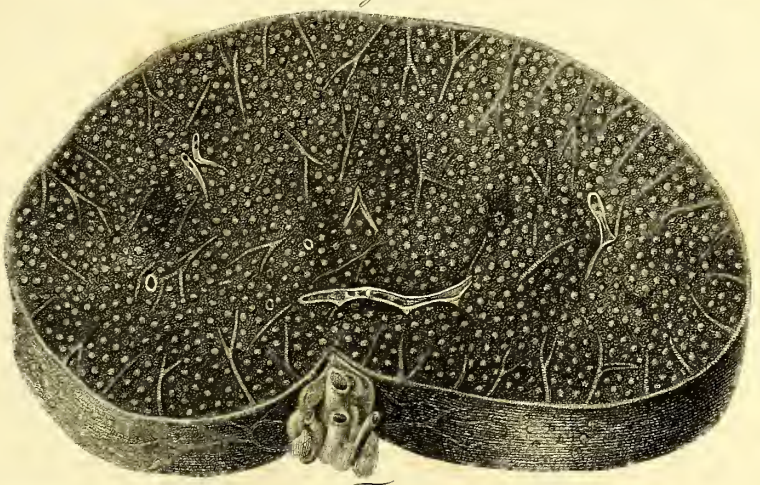


Fig. 2.

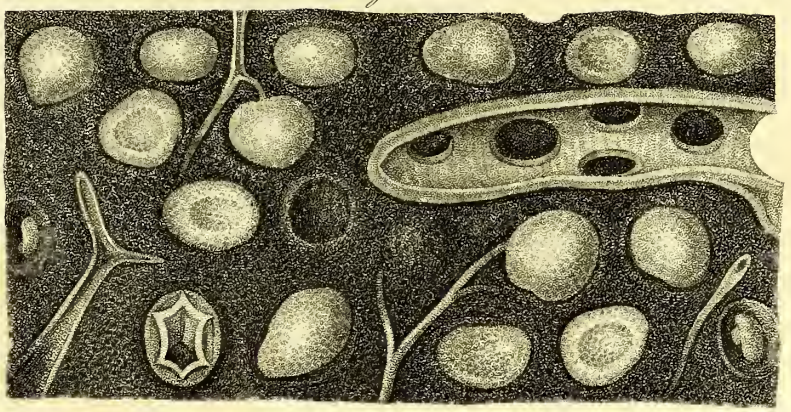


Fig. 3

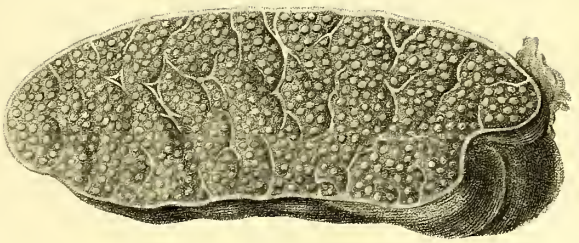
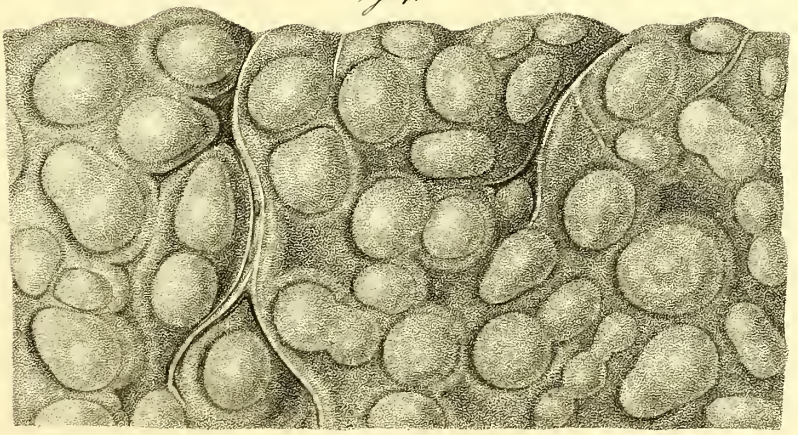


Fig. 4.



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Js. Basire sc.

TAB. XXXVII.

LECTURE FIFTH.

Fig. 1. The same section, after twelve days' immersion, the water changed every twenty-four hours. The black is produced by the decomposition of the colouring matter of the blood.

Fig. 2. The same, magnified eight diameters, showing the mucus in the cells to be soluble in water.

Fig. 3. The same, after twenty days' immersion.

Fig. 4. The same, magnified eight diameters.

Fig. 1.

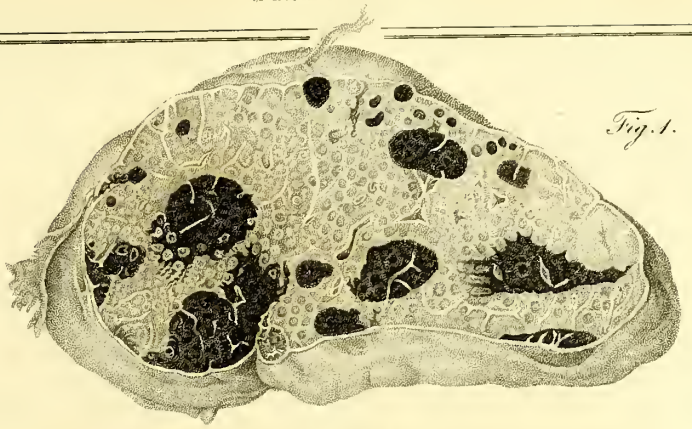


Fig. 2.

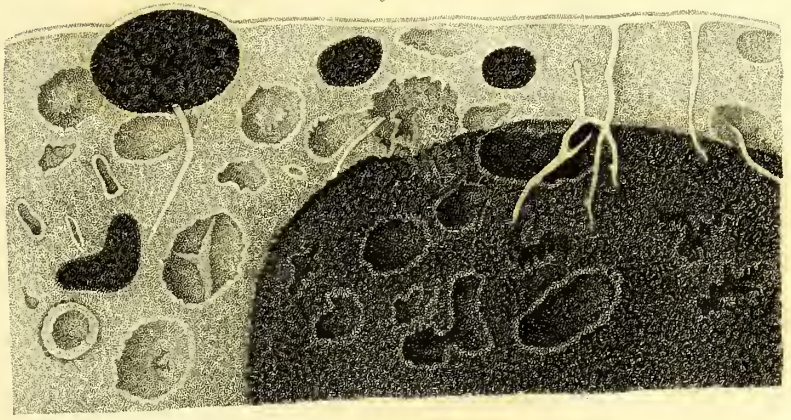


Fig. 3

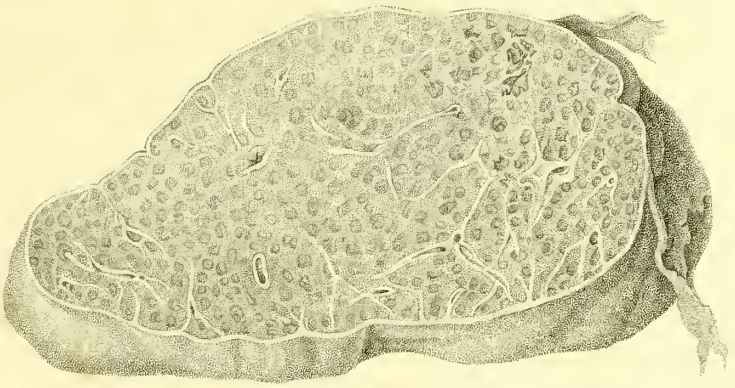
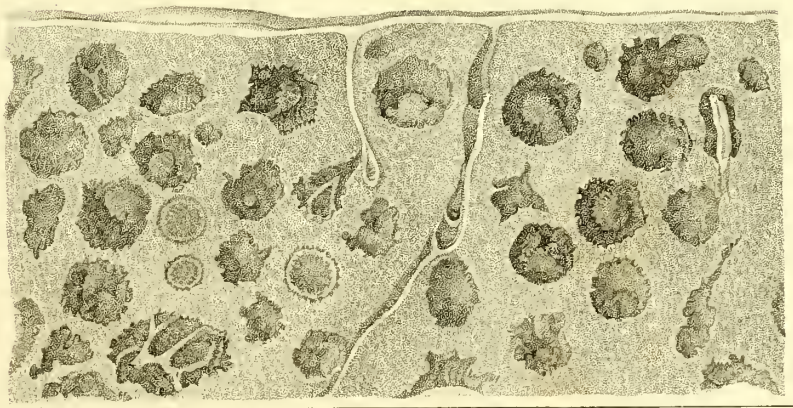


Fig. 4.



Franz Bauer del.

J. Basire sc.

TAB. XXXVIII.

LECTURE FIFTH.

Fig. 1. The same section of the spleen after immersion forty-eight days, in which every thing was dissolved, but the ramifications of the arteries.

Fig. 2. The same, magnified eight diameters.

Fig. 1.

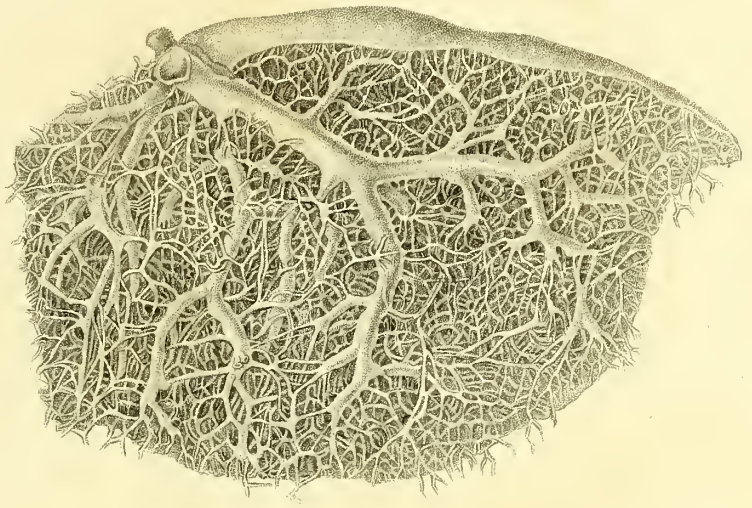
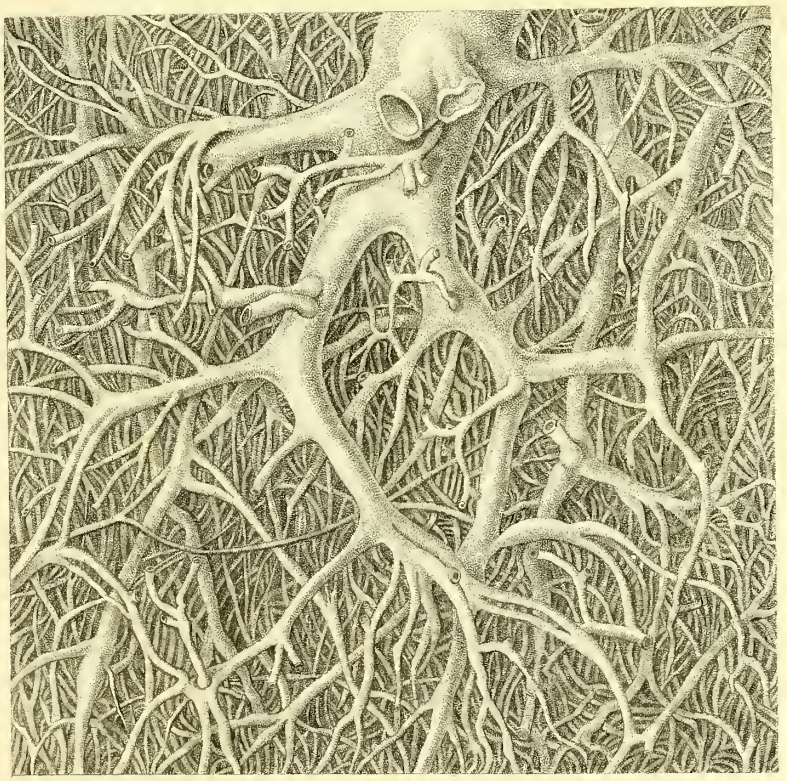


Fig. 2.



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TAB. XXXIX.

LECTURE SIXTH.

Fig. 1. Back view of the aphrodita aculeata.

Fig. 2. The intestine and lateral branches from it exposed.

Fig. 3. The hindo medicinalis laid open from behind; the stomach removed; thirty-two cells exposed, which act as organs of respiration.

a a. These cells.
b b. Two large arteries.
c c. Mucous glands.
d d. Glands connected with the testicles.
e e. Testicles.
f. The penis.
g. The uterus.

Fig. 1.

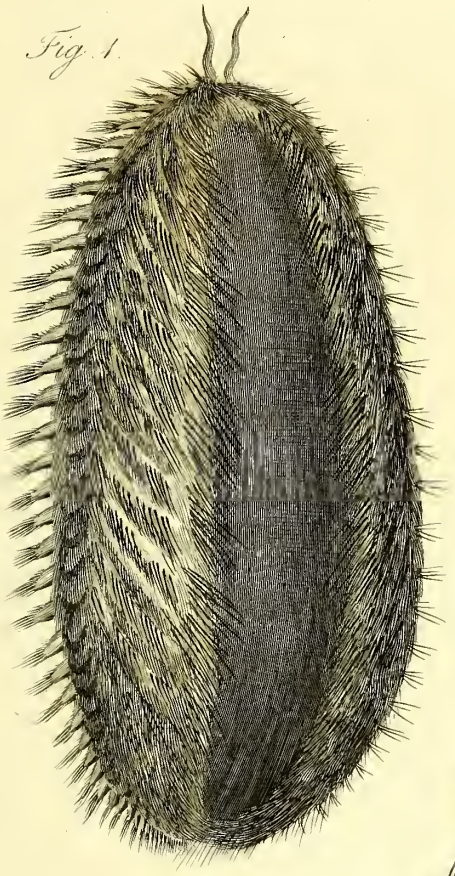


Fig. 2.

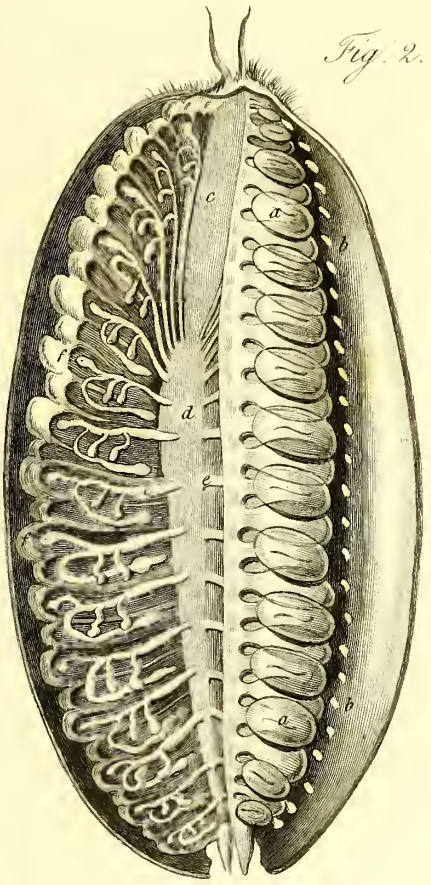
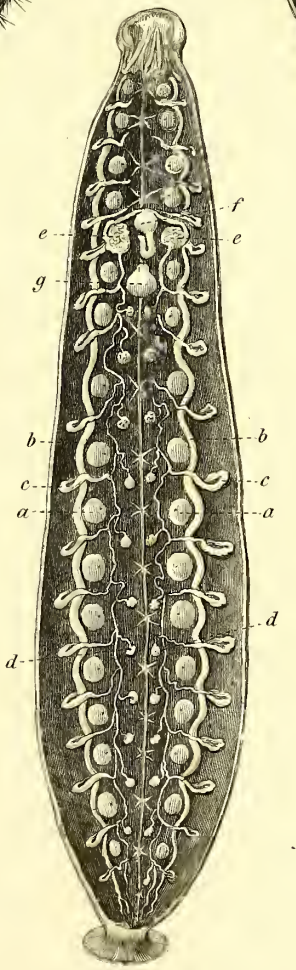


Fig. 3.



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J. Basire, sc.

TAB. XL.

LECTURE SIXTH.

Fig. 1. Lumbricus marinus. Natural size.

Fig. 2. Posterior view of the blood-vessels, resting on the stomach and intestine.

a a a. The great artery.

b b. The nerve.

c c c c. The organs of aeration.

d d d. The arteries passing from the gills to the artery on the back.

e e e e. Apparently the liver.

f. Œsophagus.

g. Stomach.

h h. Two bags that appear to communicate with the stomach.

i i. The stomach.

k k. The auricles of the heart.

l l. The lateral veins.

m m. Ova distinctly seen when magnified.

Fig. 3. An opposite view.

a a a. The great vein.

b b. Infundibular terminations of the auricles.

c c c c. The veins from the gills or aerating organs.

Fig. 4. The arteries of lumbricus terrestris, in an unimpregnated state. Back view.

a a a. The artery going to the head.

b b b. Five lateral canals of communication with veins.

c c. Œsophagus.

d. Crop.

e. Gizzard.

f f. Loculated intestine.

g g. Ova.

h h h. Organs of aeration.

TAB. XL.

Fig. 1.

Fig. 2.

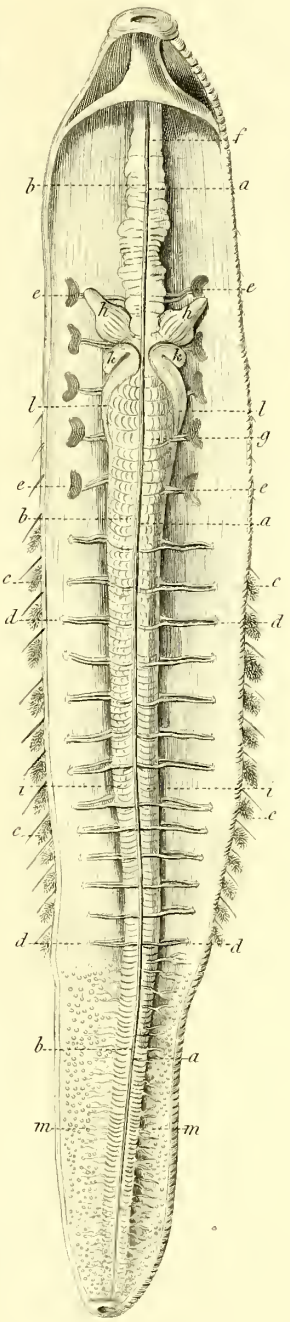


Fig. 3.

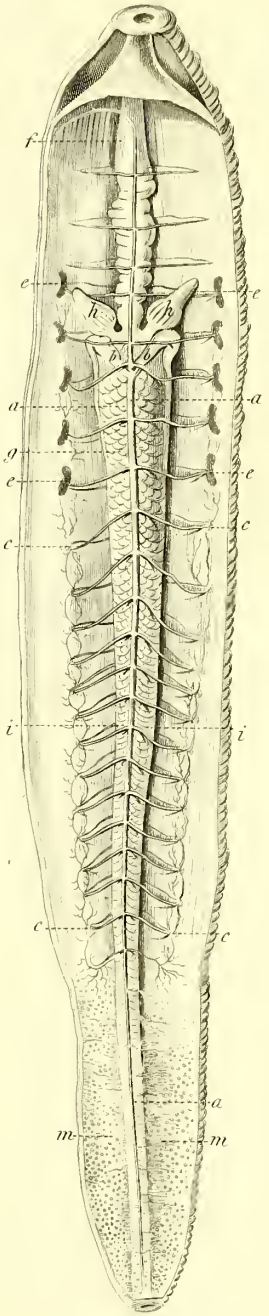
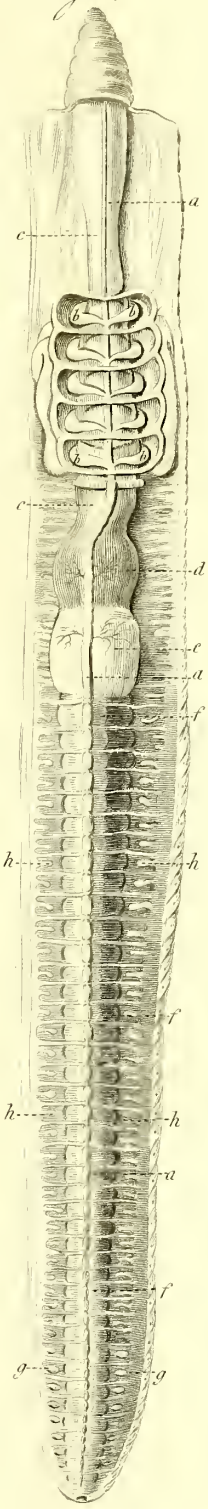


Fig. 4.



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J.s Basire. sc.

TAB. XLI.

LECTURE SIXTH.

Fig. 1. The shell of the teredo gigantea, upon the scale of two and a half inches to a foot.

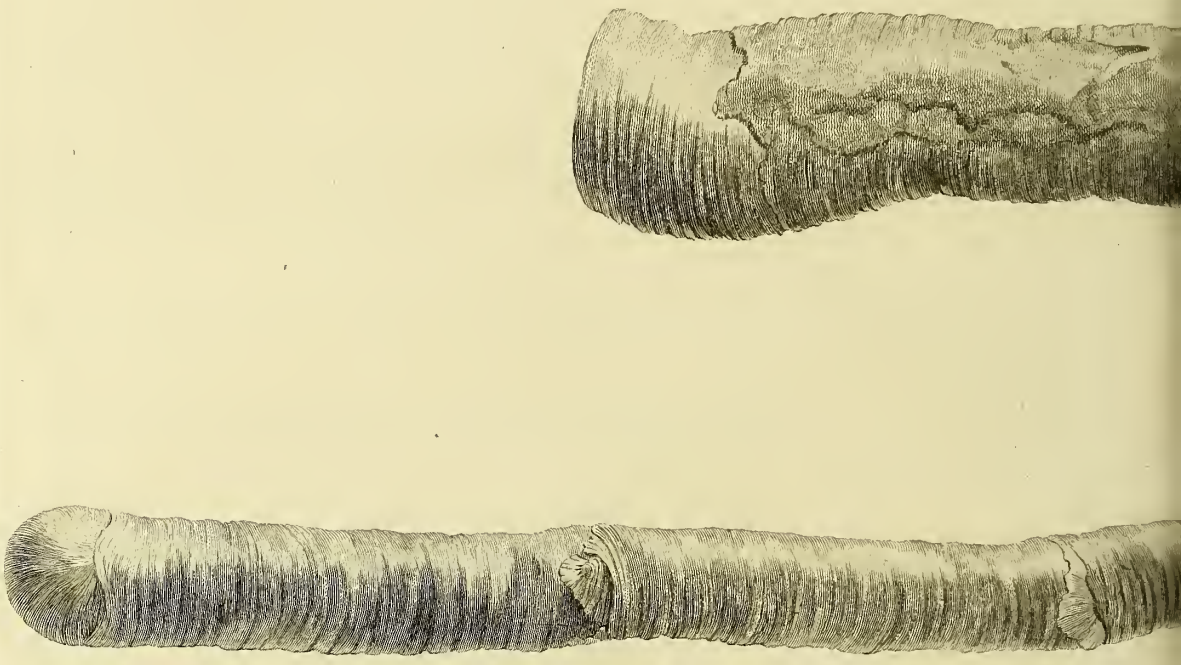
Fig. 2. The terminations of the double tube in which the shell terminates.

Fig. 3. A longitudinal section of this double portion.

Fig. 4. A transverse section at the thickest part, cut and polished.

Fig. 5. A transverse section near the small end. The last four figures of the natural size.

TAB. XLI.



Scale of 3 Inches to a Foot.

Fig. 2.

Fig. 1.

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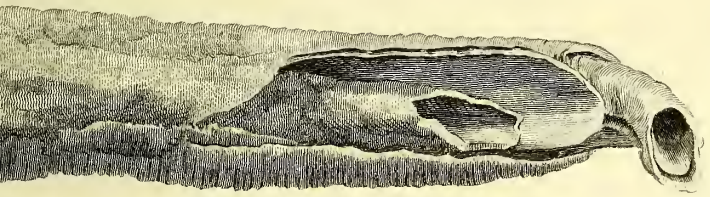


Fig. 2.

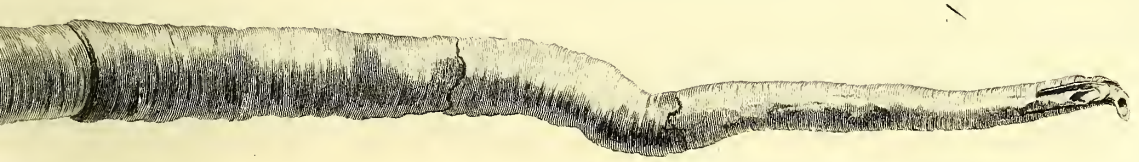


Fig. 1.

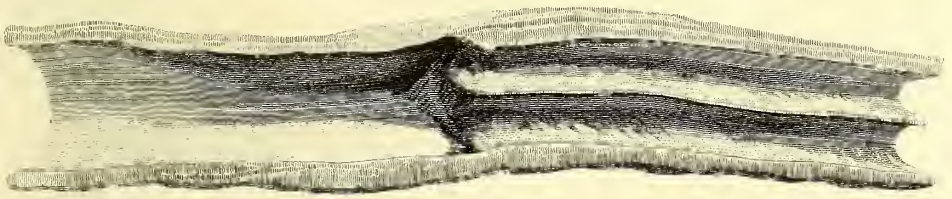


Fig. 3.

Basire fc.

TAB. XLII.

LECTURE SIXTH.

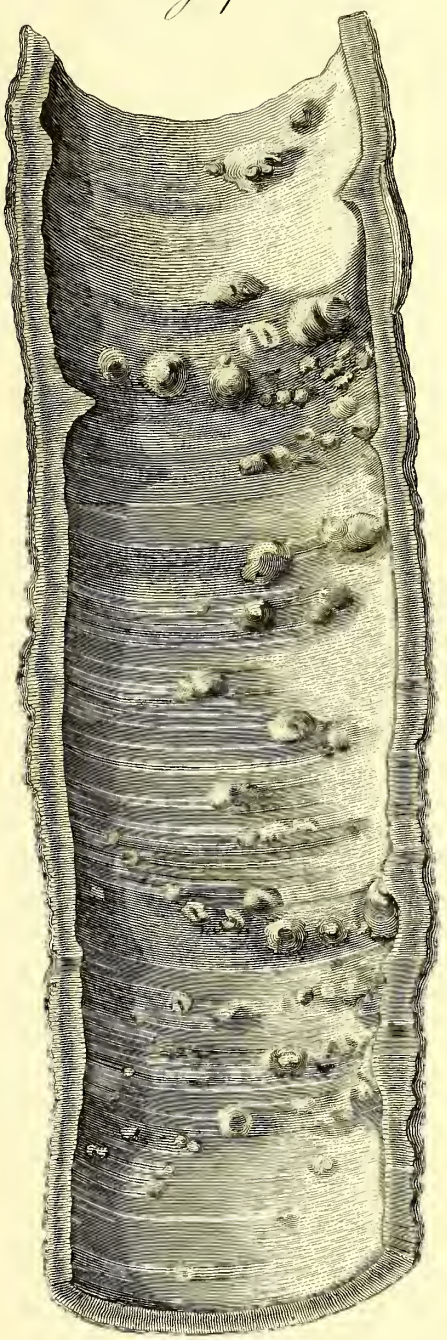
The first section shows the manner in which the animal closes the tube when arrived at its full size.

The second shows irregularities on the internal surface of the tube, the effect probably of injury or disease.

Both figures are of the natural size.

Fig. 6.

Fig. 7.



Clift del.

Basire fc.

TAB. XLIII.

LECTURE SIXTH.

Fig. 1. The figure of a teredo navalis from the British Museum, showing the heart and other internal organs of the natural size, exposed in a posterior view.

a a. The boring shells separated, and turned back.
b. The digastric muscle.
c. The intestine passing over it.
d d. The testicles.
e. The auricles of the heart.
f f. The ventricle of the heart.
g g. The artery going to the head.
h h. The vessels from the breathing organs going to the heart.
i i. The breathing organs.
k k k k. The ducts of the testicles traced through their course.
l l. A strong substance with transverse fibres, having a pile upon it, to strengthen this, the weakest part of the animal.

Fig. 2. A teredo navalis, diminished upon a scale of four-tenths of an inch to one inch, taken from an original drawing, upon which was written the following memorandum. "Trouvé en redoubant le Triomphant, envoyé par M. Begon, le 25 Juillet 1681."

Fig. 3. The boring shells of the natural size, as well as the stems which form the opercula.

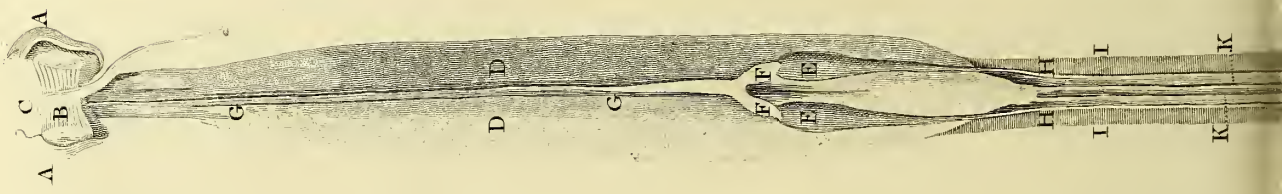
Fig. 4. One of the opercula magnified.

TAB. XLIII.

Fig. 3

Natural Size

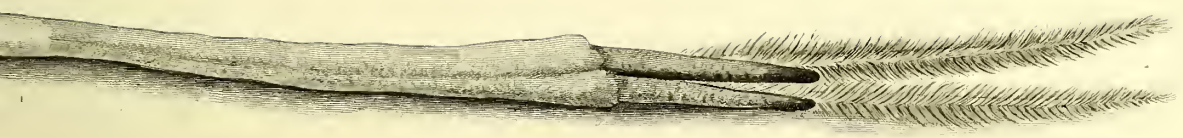
Fig. 1.



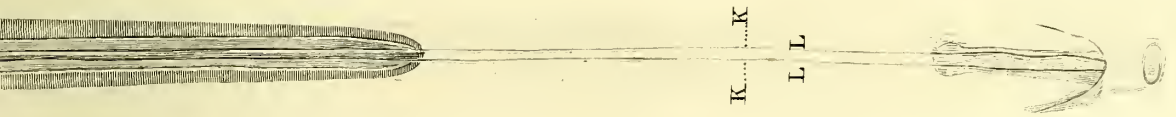
Natural Size

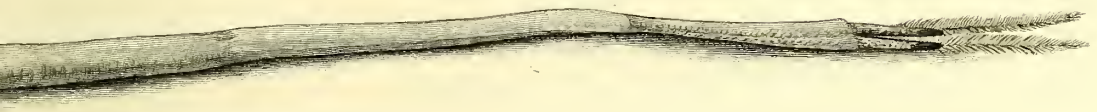
Fig. 2.

Scale $\frac{4}{10}$ of an Inch to an inch



g. 4.





Jᵉ Basire scūlp.ᵗ

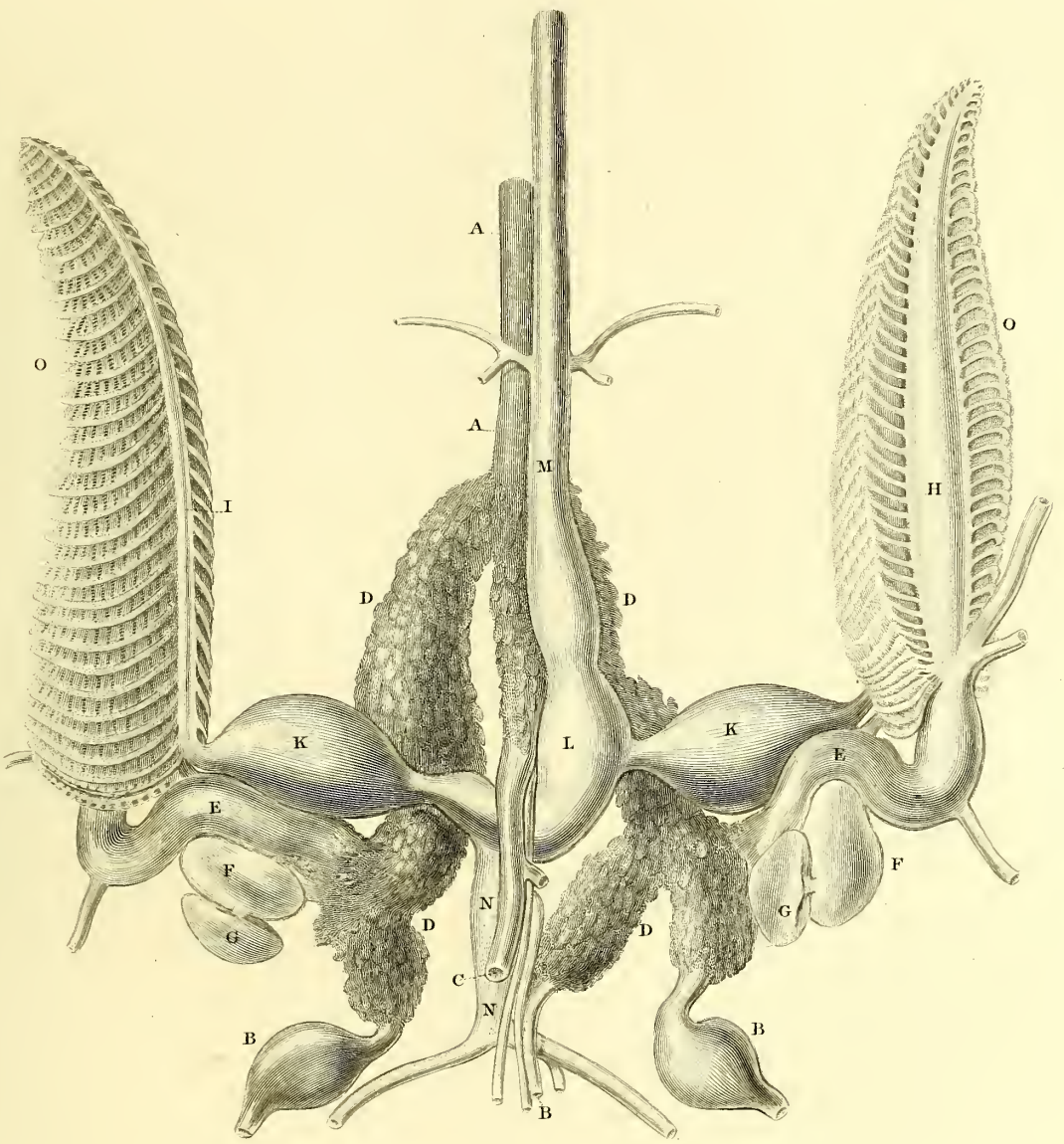
TAB. XLIV.

LECTURE SIXTH.

Posterior view of the heart of the sepia officinalis.

A A. Vena cava anterior.
B B B. Venæ cavæ inferiores.
C. Vena cava media.
D D D D. Large receptacles connected with the veins.
E E. Two large veins going to the gills.
F F. Two bulbs with valves to prevent regurgitation.
G G. Two small hollow bodies hanging from the bulbs, but having no apparent communication with them.
H. The large vein supplying the gill.
I. The vein carrying blood from the gill to the heart.

TAB. XLIV.



W. Clift. del.

P. Basire. sc.

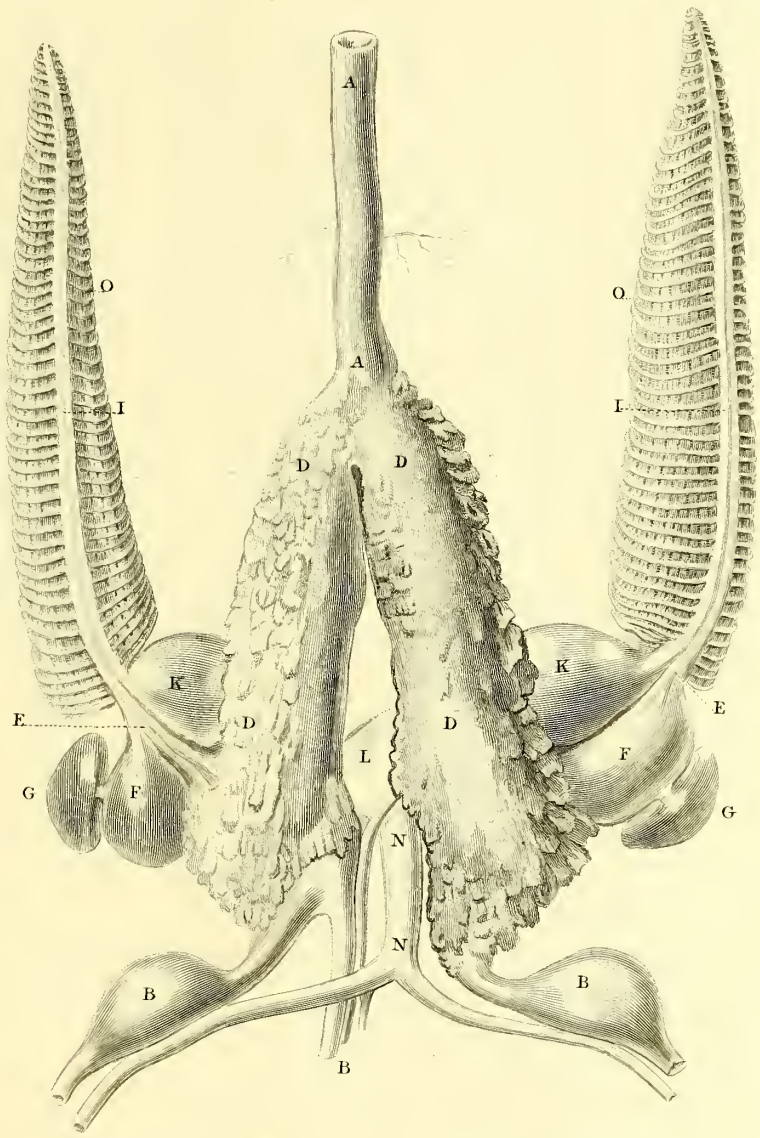
TAB. XLV.

LECTURE SIXTH.

The anterior view with the same letters as Tab. XLIV., except N N. The inferior aorta.

O O. The gills.

TAB. XLV.



W. Clift. del.

J.s Basire, sc.

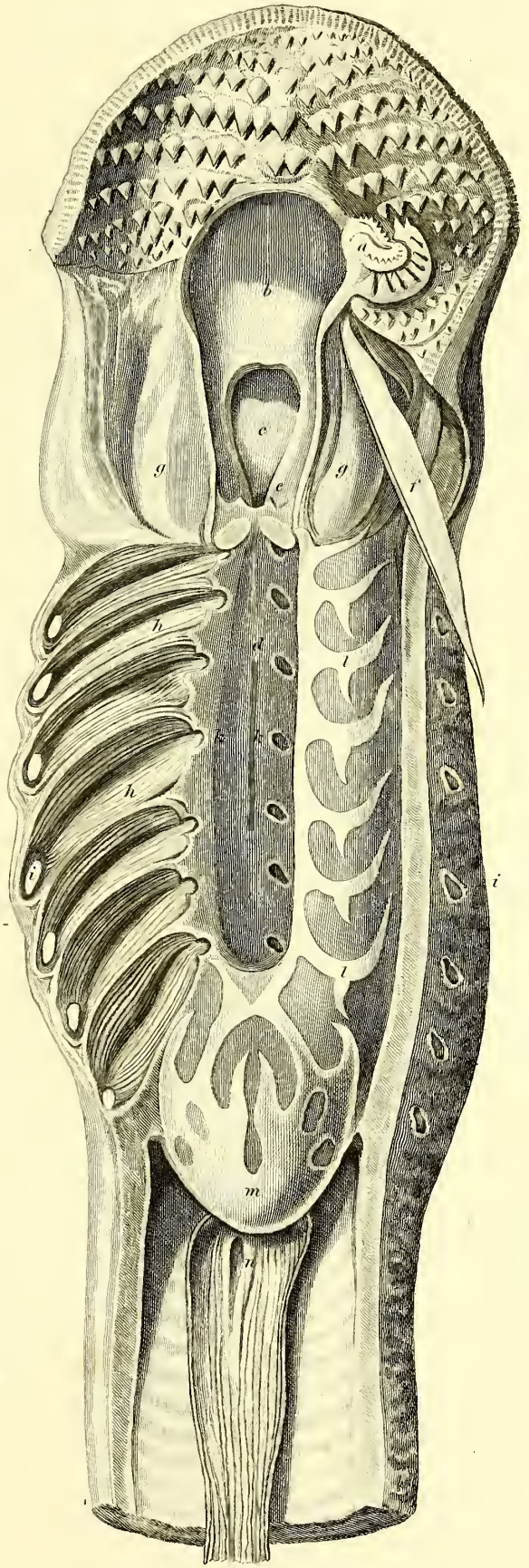
TAB. XLVI.

LECTURE SIXTH.

The organs of respiration of the lamprey. Natural size.

a. The tongue.
b. The mouth.
c. The fauces.
d. The tube between the bags containing gills.
e. The termination in a loose edge at the orifice of the œsophagus.
f. A firm cartilage in the centre of the retractor muscle of the tongue.
g g. Two large salivary glands.
h h. The cavities containing the gills, laid open.
i i. The orifices of these cavities.
k k. The internal orifices.
l l. Cartilages of the thorax.
m. Cartilaginous pericardium.
n. Termination of œsophagus in stomach.

TAB. XLVI.



W. Clift del.

TAB. XLVII.

LECTURE SIXTH.

Respiratory organs of an animal from the South Seas and Myxine.

Fig. 1. These organs exposed in an animal from the South Seas.

a. External nostril.
b. Internal nostril.
c. A tooth in the roof of the mouth.
d d. The tongue split.
e e. The muscles of the tongue divided.
f f. Œsophagus.
g g. External openings, respiratory organs.
h h. The internal ones.
i i. The organs.

Fig. 2. One of these bags laid open.

Fig. 3. The same parts in Myxine with the same letters.

g. The stomach.
h h. External openings to the organs.
i. Opening into œsophagus.
k k. The tubes leading to the organs.
l l. The internal openings.
m m. The organs themselves.
n n. Mucous glands.

Fig. 1.

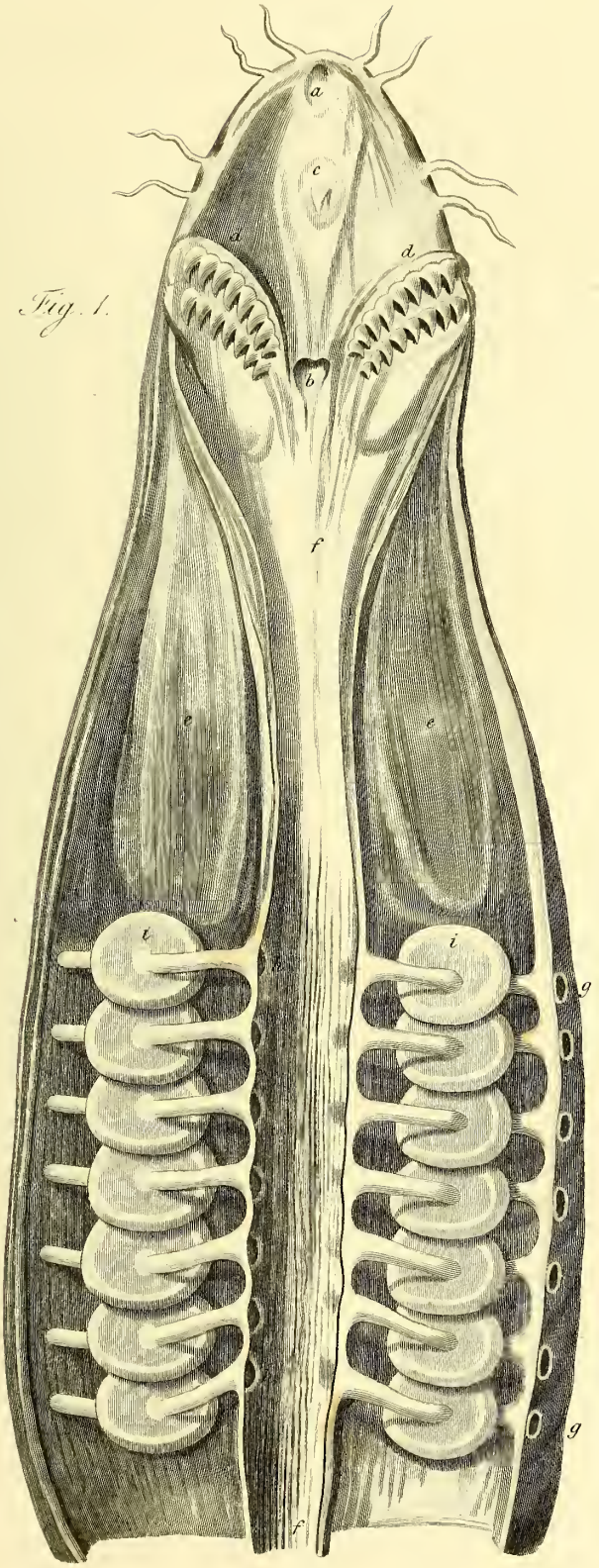


Fig. 2.

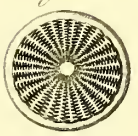
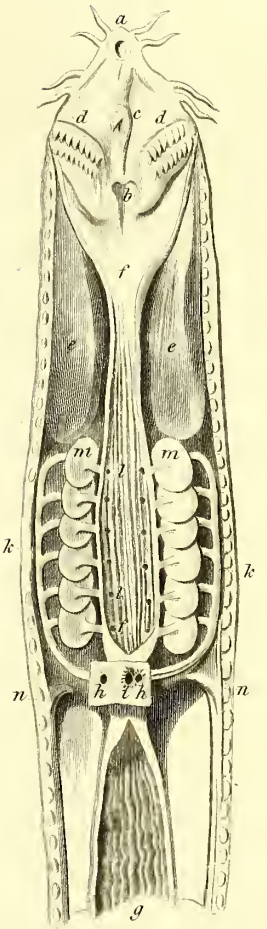


Fig. 3.



W.m Clift. del.

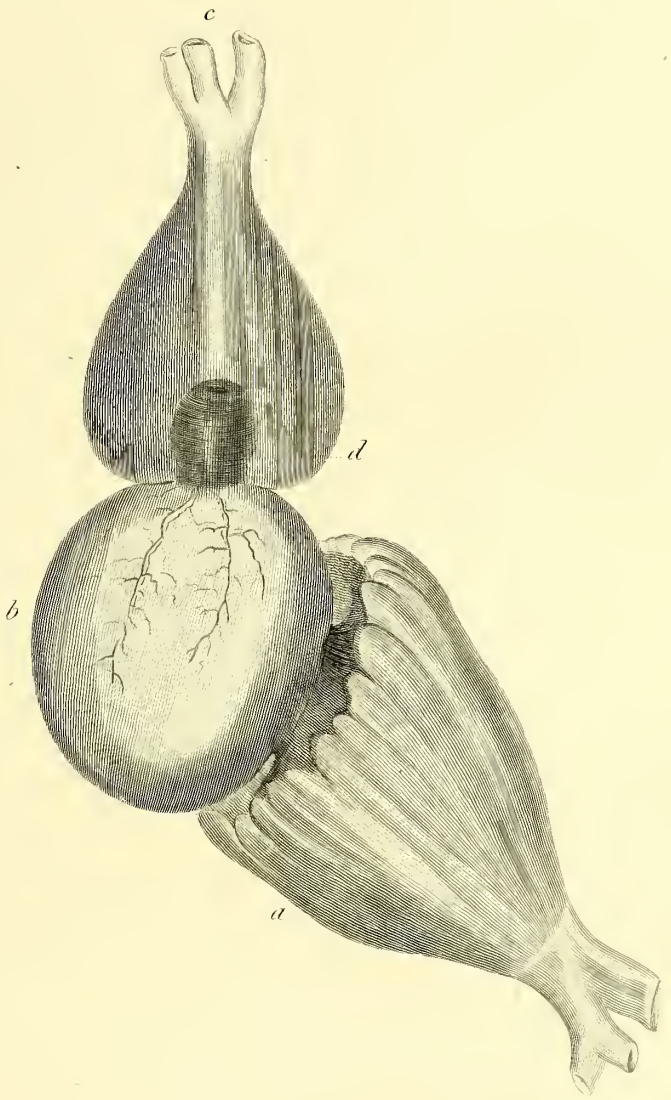
I. Basire. sc.

TAB. XLVIII.

LECTURE SIXTH.

The heart of the lophius piscatorius in a distended state.

a. Auricle.
b. Ventricle.
c. Branchial artery.
d. A muscular tube projecting from the ventricle into the aorta.



W.m Clift del.

T. Busiri sc.

TAB. XLIX.

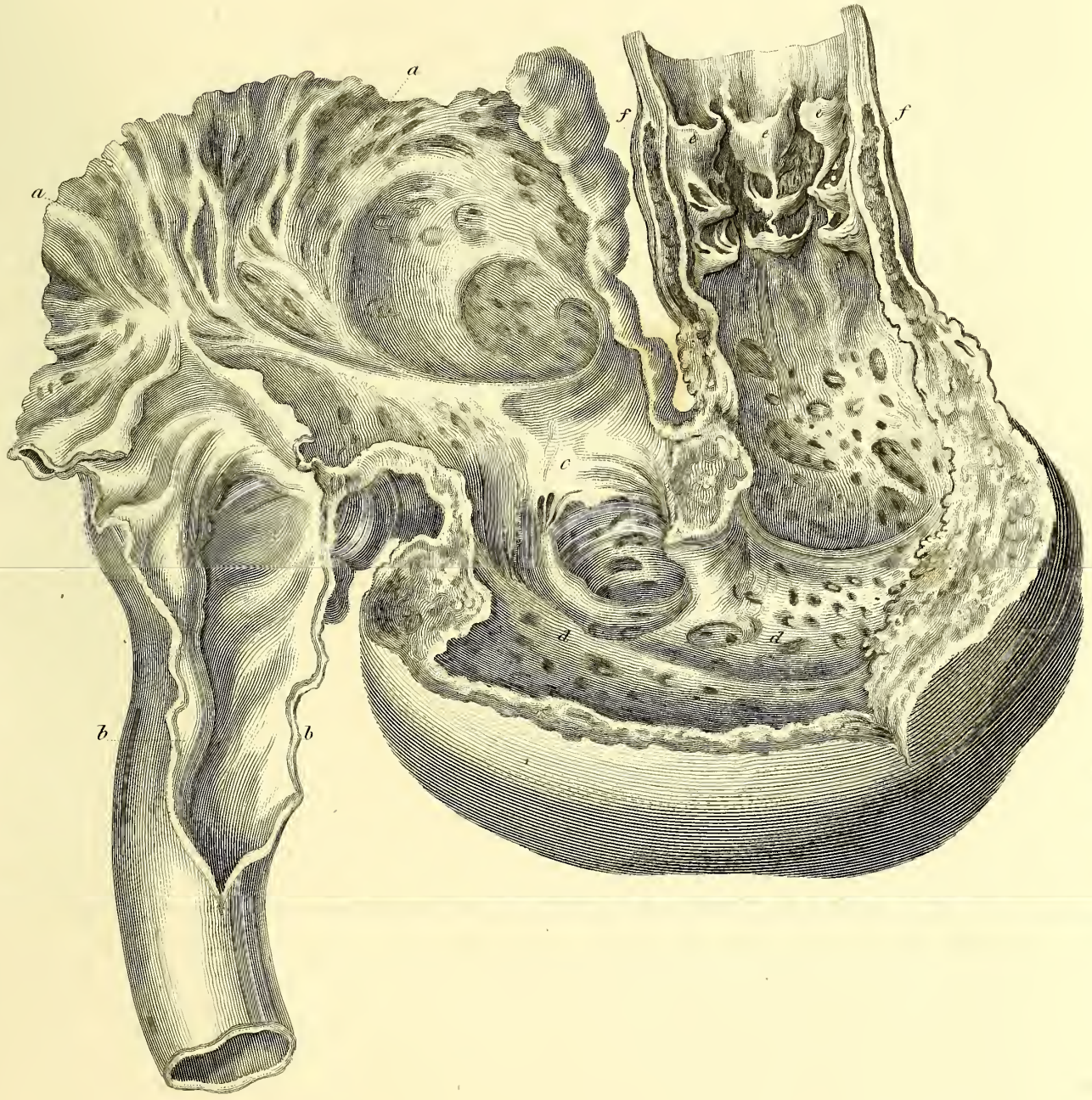
LECTURE SIXTH.

The heart of the squalus maximus laid open.

a a. Inner surface of auricle.
b b. One of the venæ cavæ laid open.
c. The valves between the auricle and ventricle.
The ventricle.
e e e. Three rows of valves with intermediate spaces to admit of regurgitation.
f. A strong muscular covering of the aorta.

TAB. XLIX.

2 Inches to a Foot.



J. Howship del.

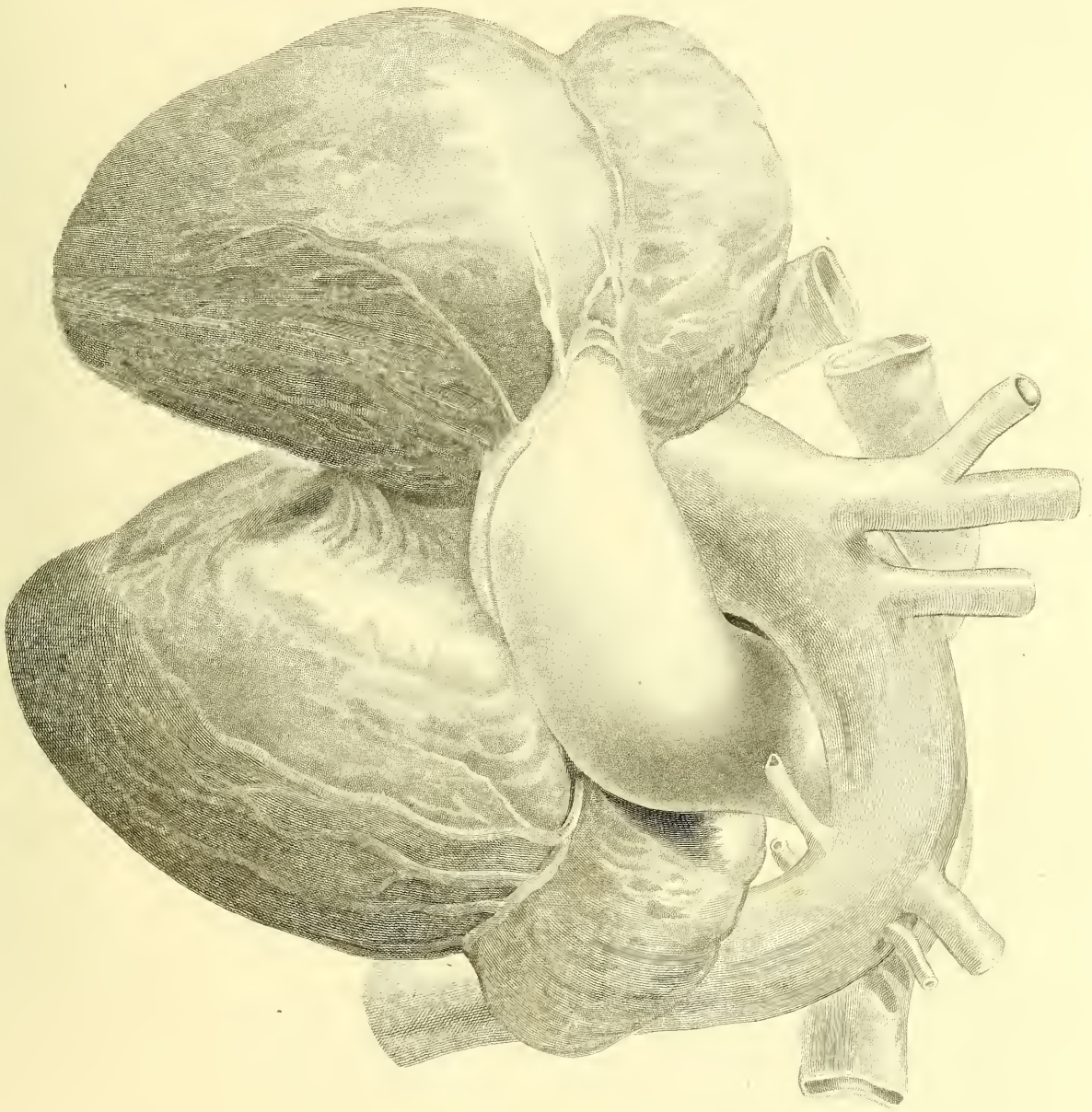
P. Basire sc.

TAB. L.

LECTURE SIXTH.

The heart of a dugong ; of the natural size.

The animal was eight feet long.



Wm Clift del.

J.s Basire sc.

TAB. LI.

LECTURE SIXTH.

Fig. 1. A portion of the trachea below the bifurcation into the lungs, in the dugong, showing the wings to be one spiral continued into a tube. Natural size.

Fig. 2. A section of the lungs, to show their structure. Natural size.

Fig. 1.

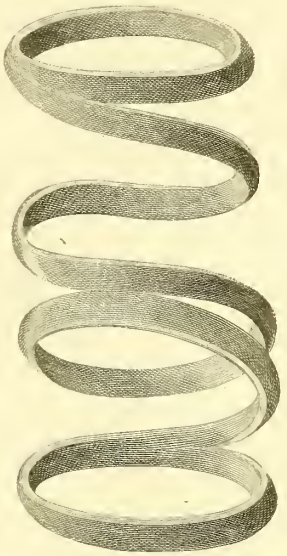
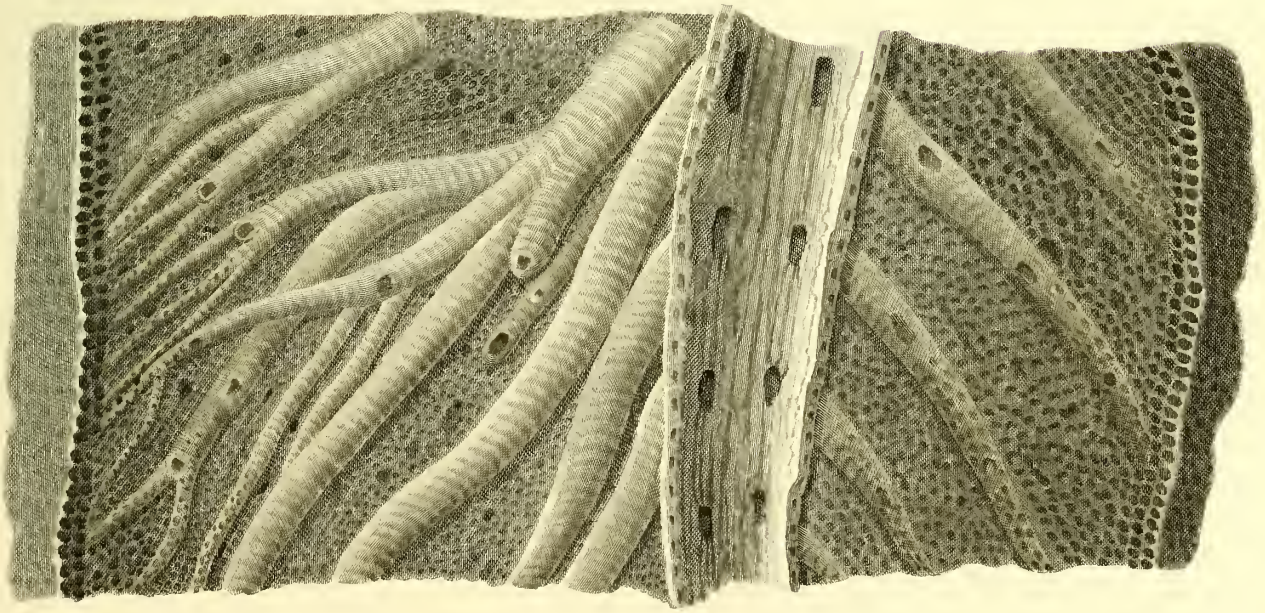


Fig. 2.



TAB. LII.

LECTURE SEVENTH.

The external appearance of a young dugong, upon the scale of two inches to a foot.

TAB. LII.

Wm. Clift del.

J.s Basire sc.

TAB. LIII.

LECTURE SEVENTH.

Fig. 1. The sternum of a young dugong, to show that the central part is made up of cartilage, a peculiarity only met with when the animal is young. Natural size.

Fig. 2. The bones of the pelvis in the female dugong; four feet six inches long. Natural size.

Fig. 1.

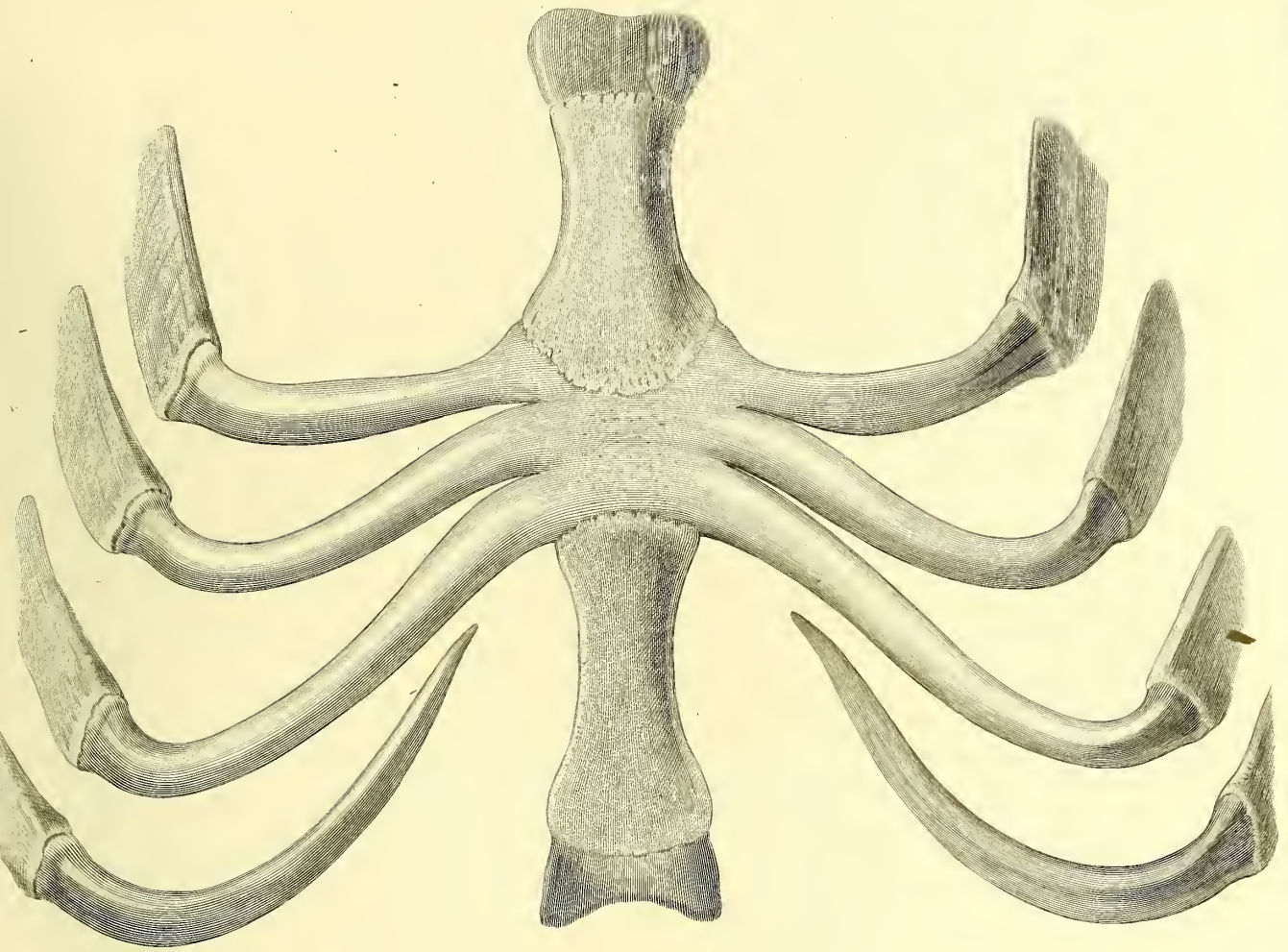
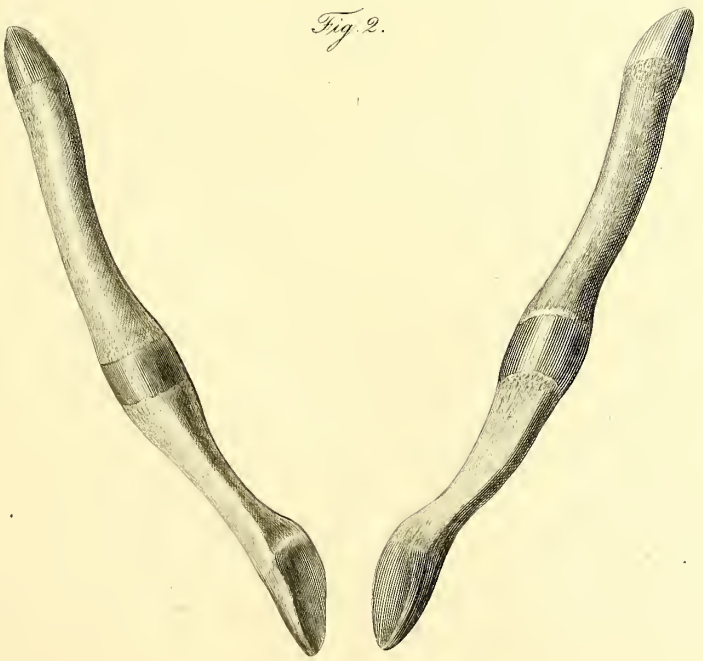


Fig. 2.



W. Clift del.

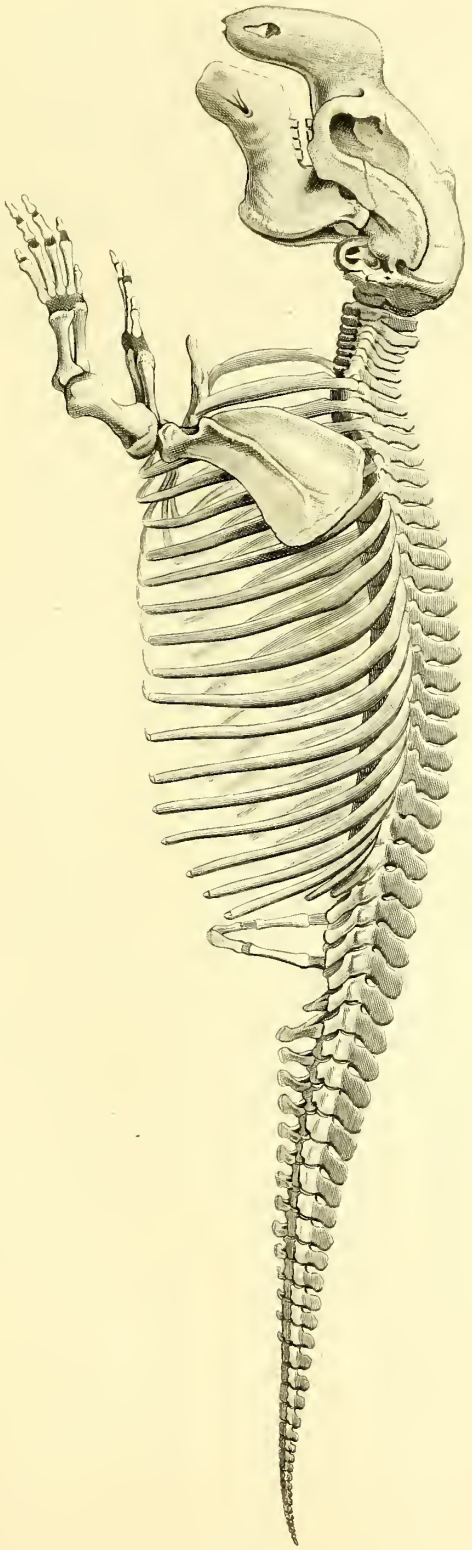
J.s Basire sc.

TAB. LIV.

LECTURE SEVENTH.

The skeleton of a small female dugong, upon a scale of two inches to a foot.

TAB. LIV.



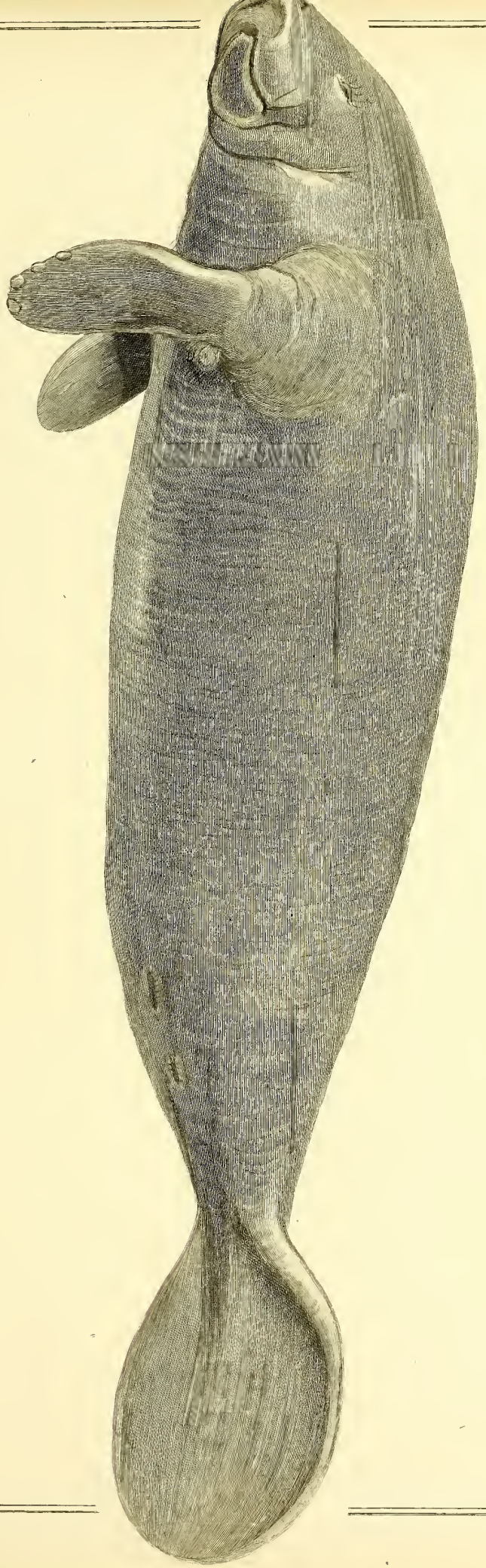
W.m Clift del.t

P.t Basire sc.

TAB. LV.

LECTURE SEVENTH.

The external figure of a female manatee, sent by the Duke of Manchester, Governor of Jamaica, upon a scale of two inches to a foot.



Wm. Clift del.

Js. Basire sc.

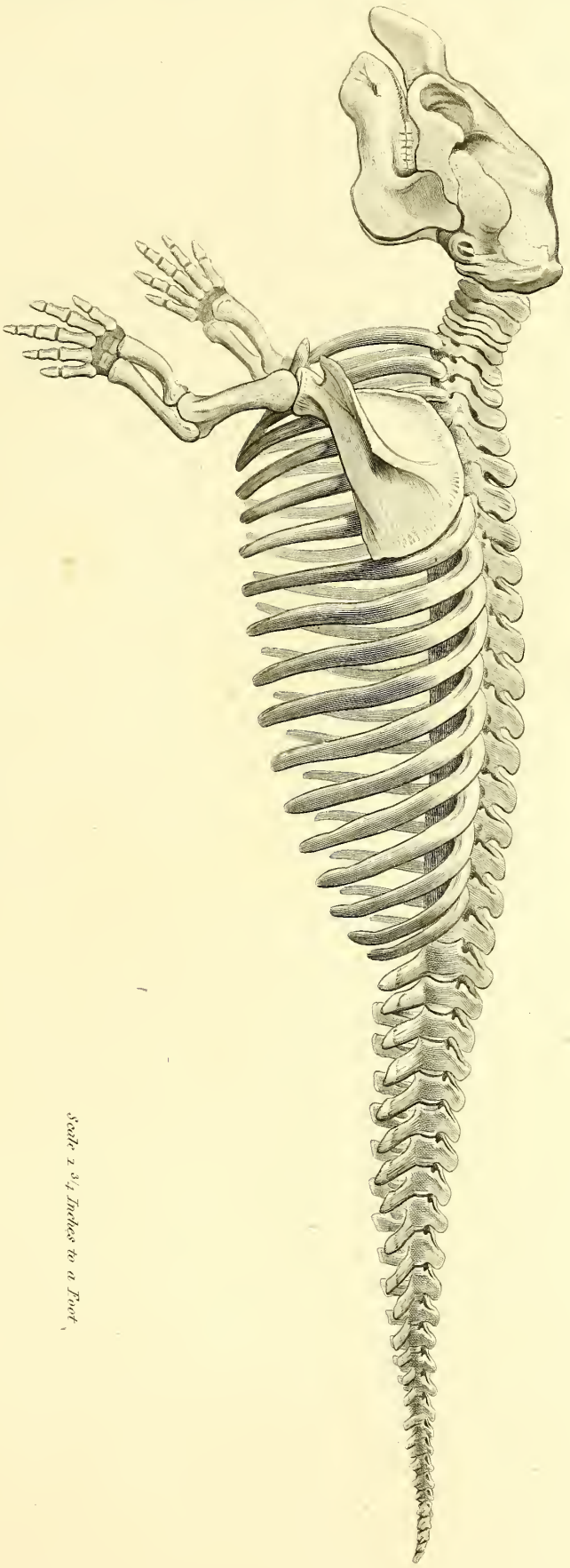
Scale 2 Inches to a Foot

TAB. LVI.

LECTURE SEVENTH.

Skeleton of a female manatee, on a scale of one inch and three quarters to a foot.

TAB. LVI.



Scale 1 3/4 Inches to a Foot.

Wm Clift del 1821.

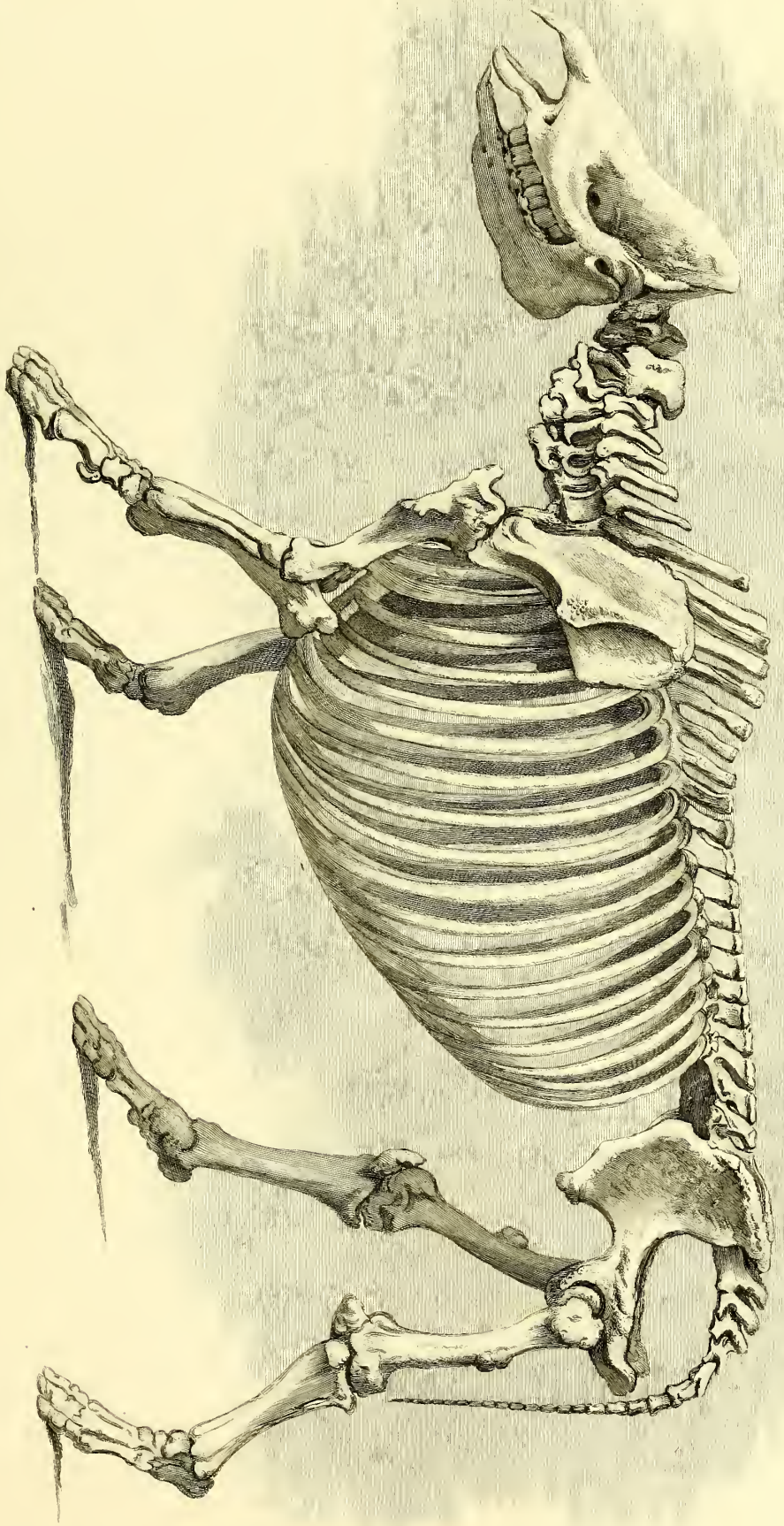
P. Basire sc.

TAB. LVII.

LECTURE SEVENTH.

The skeleton of the double-horned rhinoceros, from Sumatra ; in which the termination of the nasal bones is more prominent than in the species met with in India. On the scale of one inch to a foot.

TAB. LVII.



R. Hills Esq.r del.

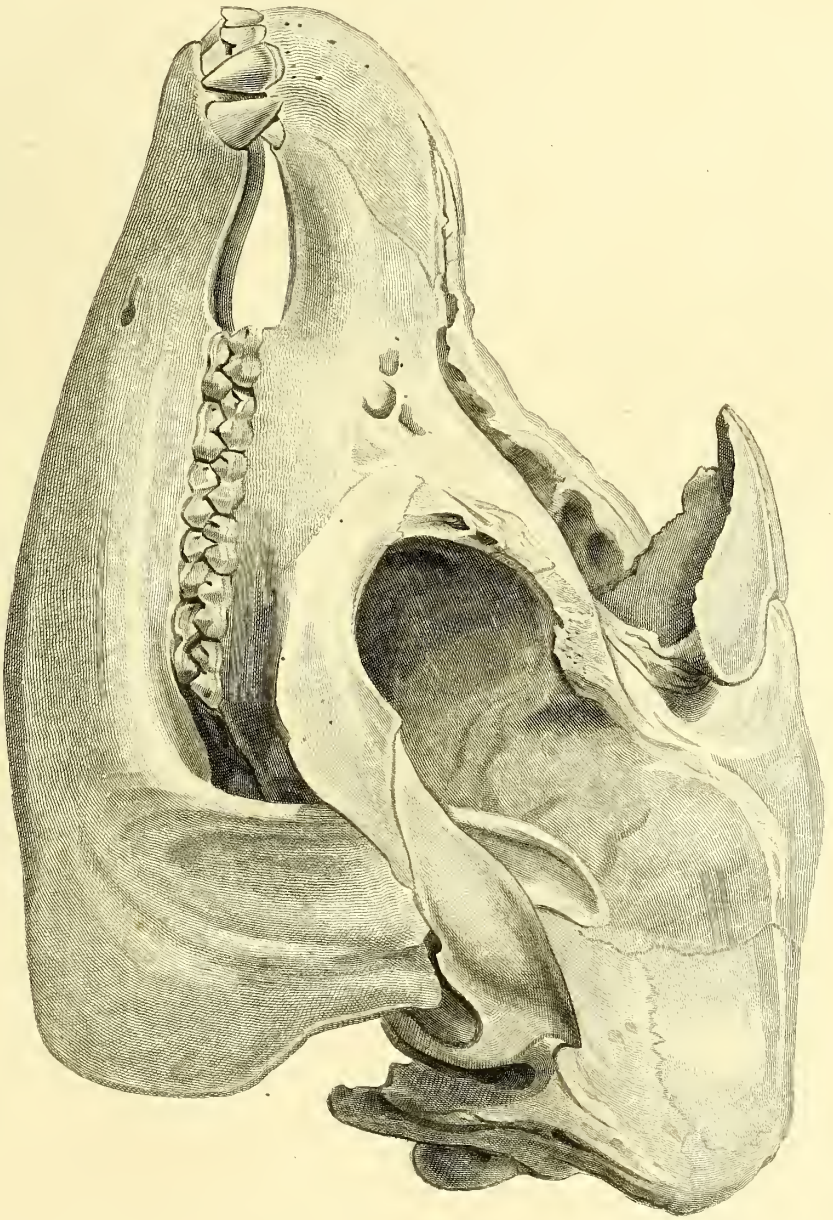
Js. Basire sc.

TAB. LVIII.

LECTURE SEVENTH.

The skull of the tapir from Sumatra; which is a nearer approach to that of the rhinoceros than the hog, particularly in the termination of the nasal bones, although in this animal they are considerably broader. On the scale of four inches to a foot.

TAB. LVIII.



Scale four inches to a Foot.

W.m Clift del.t

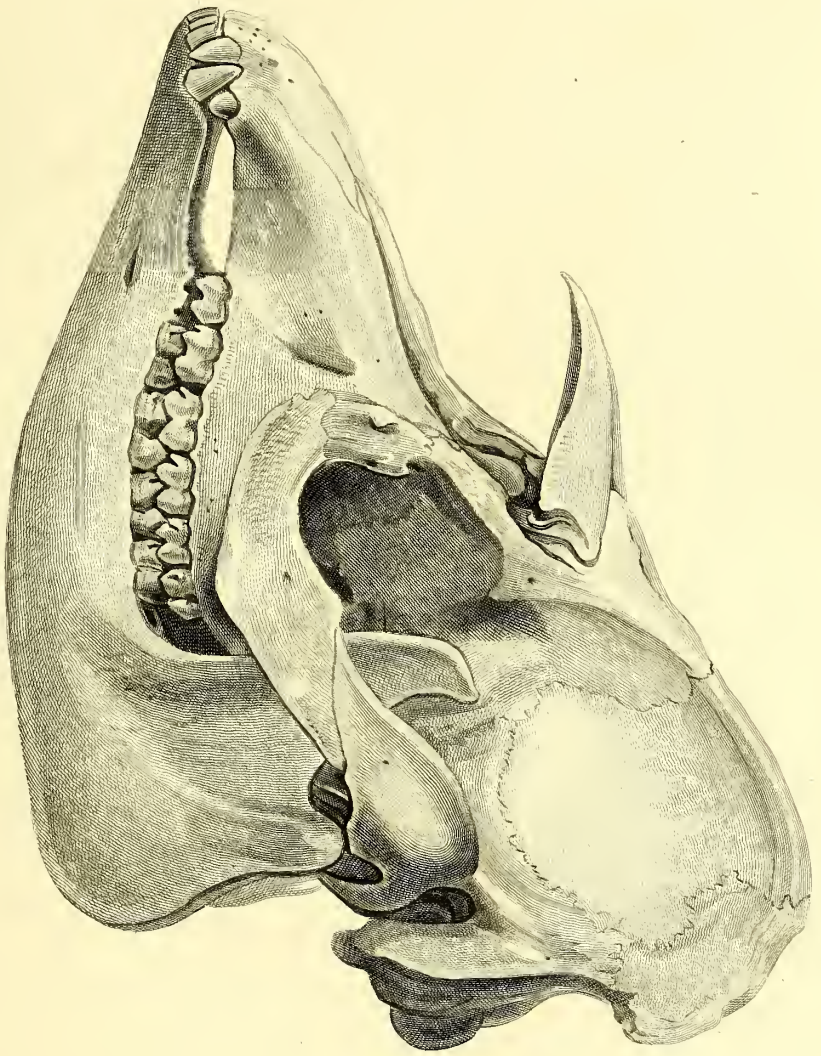
J.s Basire sc

TAB. LIX.

LECTURE SEVENTH.

The skull of the tapir from America ; to show in what it differs from that of Sumatra. On the scale of four inches to a foot.

TAB. LIX.



Scale Four inches to a Foot.

Wm Clift del.

Js Basire sc.

TAB. LX.

LECTURE SEVENTH

Fig. 1. Represents the horns of a new species of rhinoceros, attached to the skull. Upon the scale of one inch and a half to a foot.

Fig. 2. A rhinoceros' horn preserved in the British Museum. Upon a scale of two inches to one foot.

Fig. 3. The horns of the double-horned rhinoceros of Africa, in situ; taken from the engraving in the sixth volume of the Supplement to Buffon, to show that it is a different species from that now brought to England by Mr. Campbell.

TAB. LX.

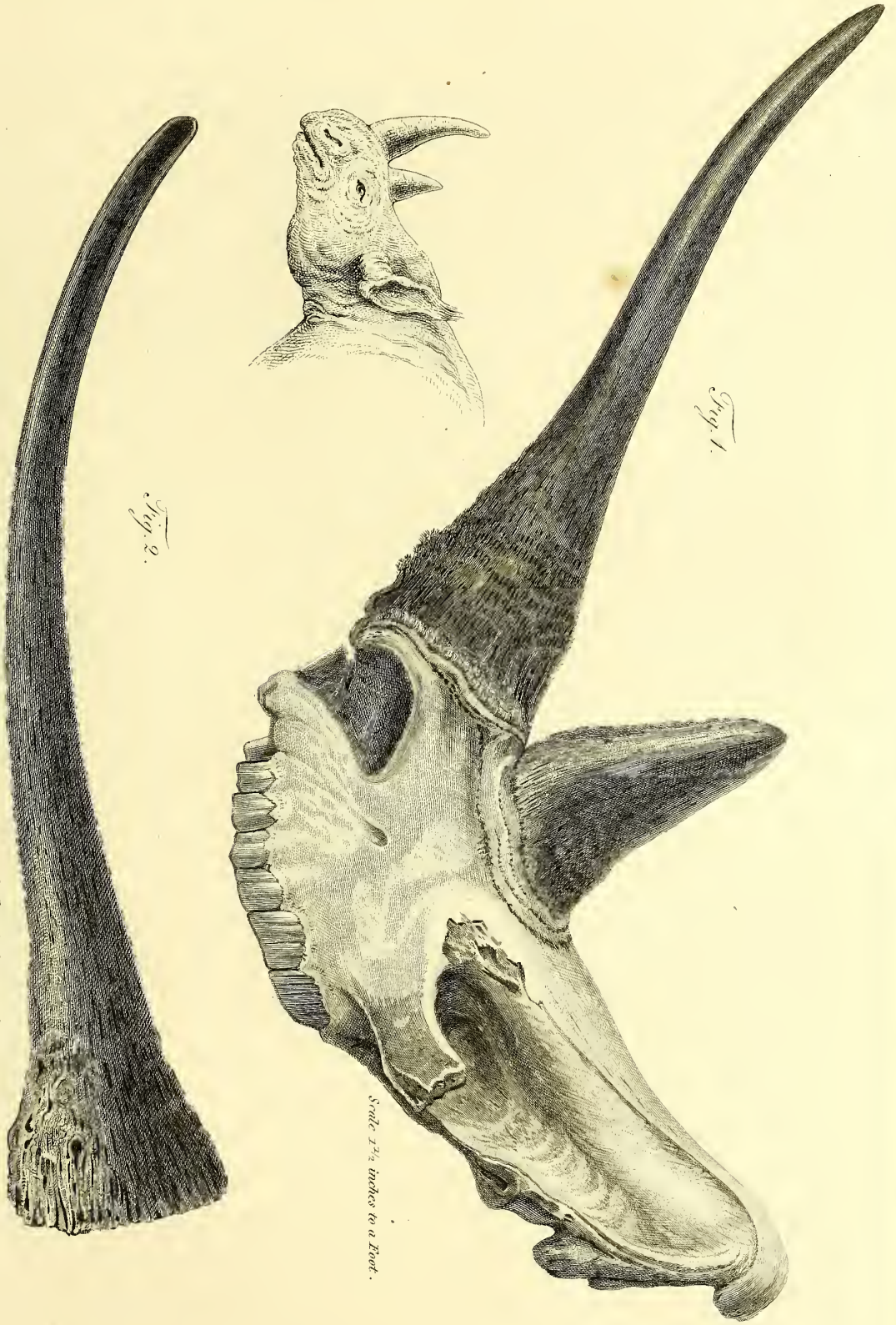


Fig. 1.

Fig. 2.

Scale 2 inches to a Foot.

Scale 1 3/4 inches to a Foot.

Wm Clift del.t

Js Basire sc.

TAB. LXI.

LECTURE SEVENTH.

The representation of a cast of the fossil-cranium of the rhinoceros (the original is in the Collection in Paris), to show that the two scabrous surfaces upon which the horns had been placed correspond with those to which the horns in Mr. Campbell's skull are attached, giving them the same direction, and the upper surface of the cranium the same general outline, so as to entitle the skulls to be considered of the same species.

TAB. LXI.

Scale 3 inches to a Foot.

W. H. Clift del.

J. Basire sc.

TAB. LXII.

LECTURE SEVENTH.

A side view of the skull and the two jaws of the proteosaurus.

a a. The blue lias in which it is imbedded.

b b. Bony plates met with in the sclerotic coat of the eye.

c c. The nasal bones broken, and the sclerotic bony plates of the opposite eye forced through the hole.

d d. The cavities of broken teeth filled with calcareous spar.

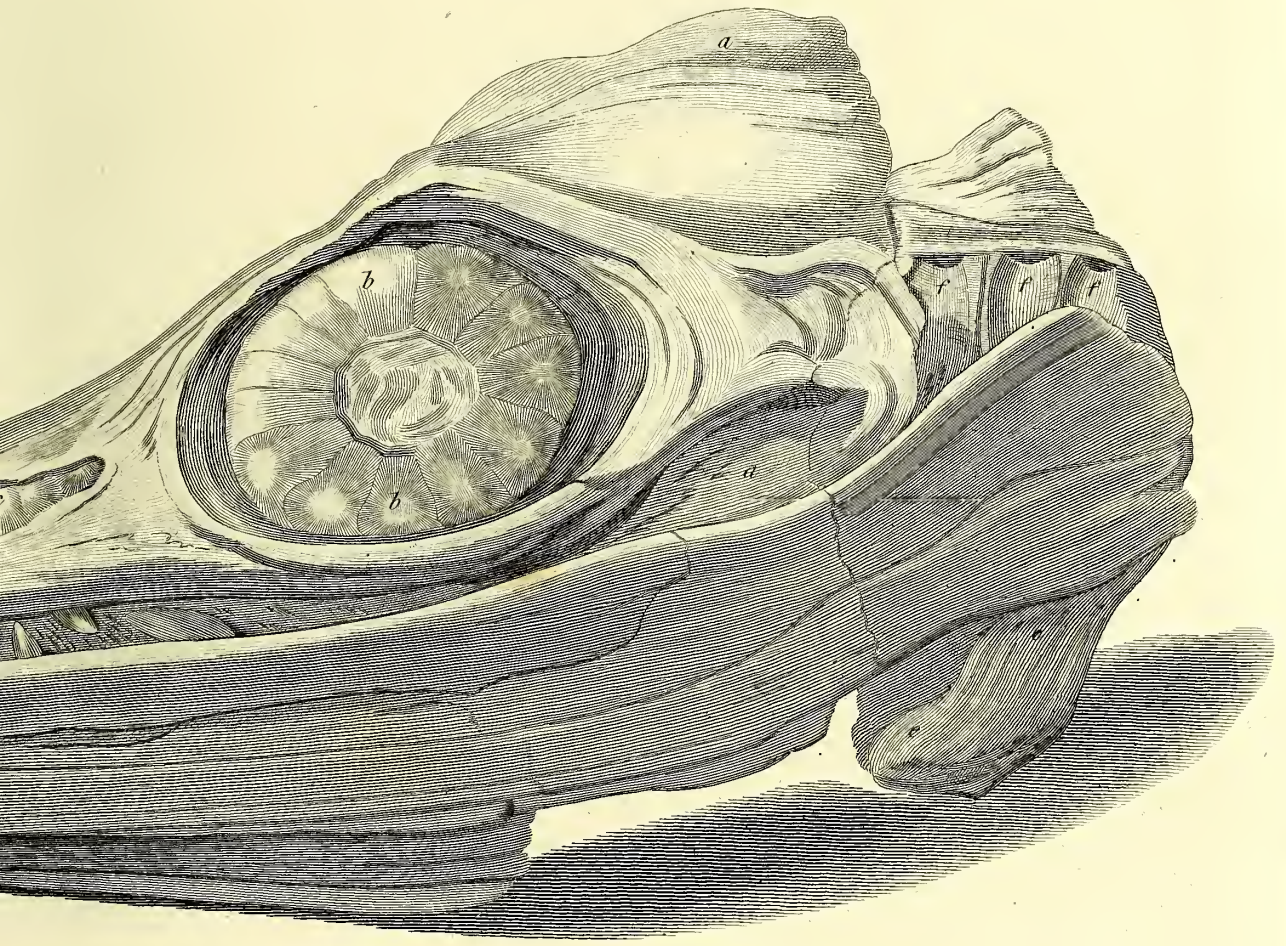
e e. A portion of the bone that lies between the skull and jaw.

f f f. Three vertebræ.

TAB. LXII.

Scale. Three

W. Clift. del.



a Foot.

P. Basire sc.

TAB. LXIII.

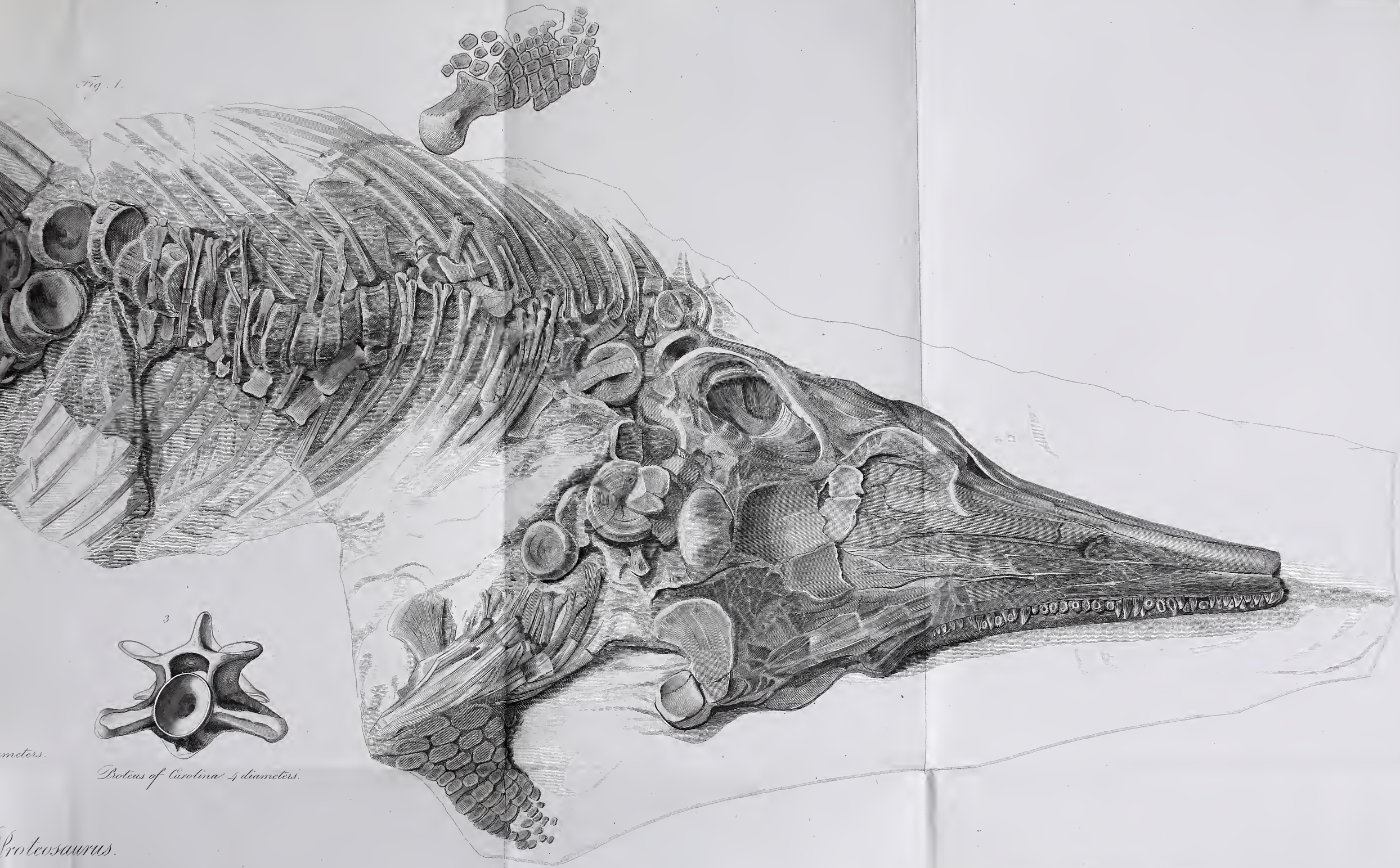
LECTURE SEVENTH.

Fig. 1. Represents the skeleton of the proteosaurus as it was found. Of the natural size.

Fig. 2. A vertebra of the proteus from Germany. Magnified ten diameters, to show the cupped appearance of its articulating extremities.

Fig. 3. A vertebra of the proteus from Carolina. Magnified four times.

Fig. 1.

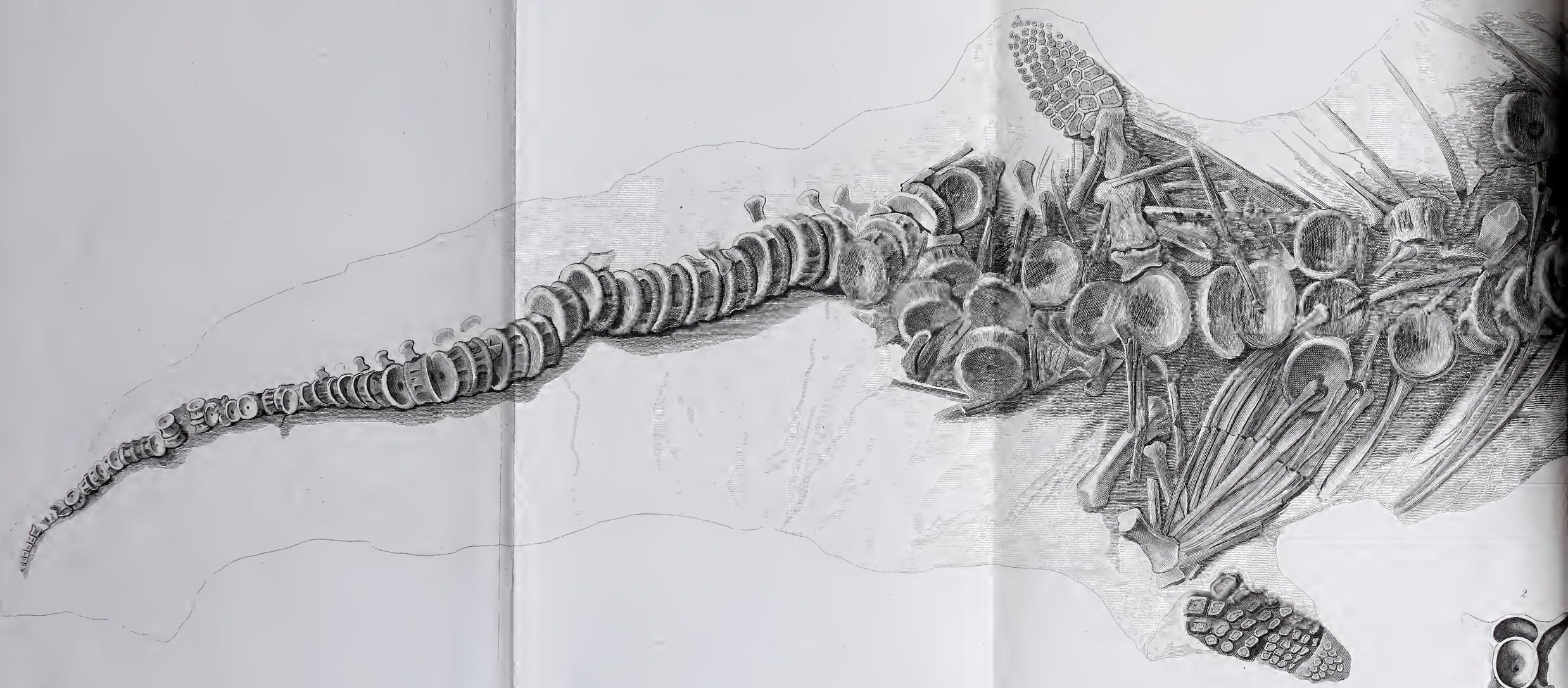


3

meters.

Proteus of Carolina 4 diameters.

Proteosaurus.



2

Proteus of Carniola 10 c

TAB. LXIV.

LECTURE SEVENTH.

Fig. 1. A portion of the skull of the proteosaurus behind the orbit, and the spinous processes of several of the vertebræ, to show the mode in which they are articulated ; and a small paddle nearly perfect. Of the natural size.

Fig. 2. The teeth in both jaws very perfect.

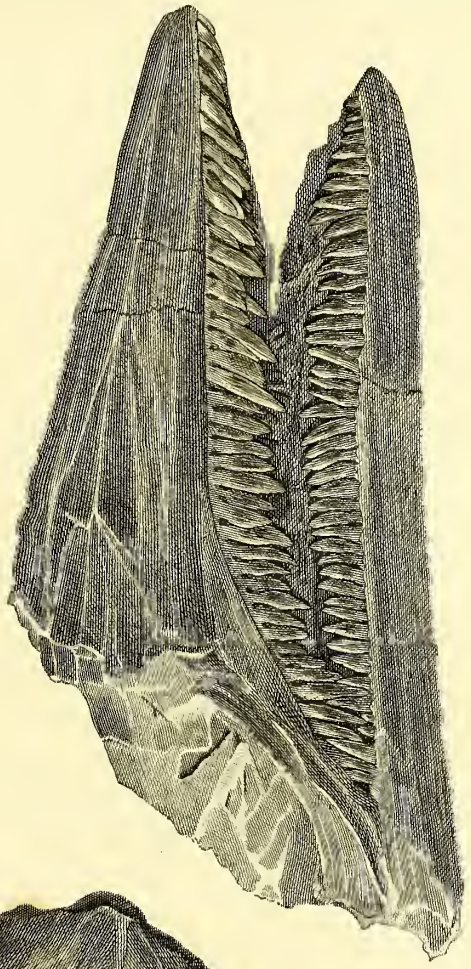


Fig. 2.

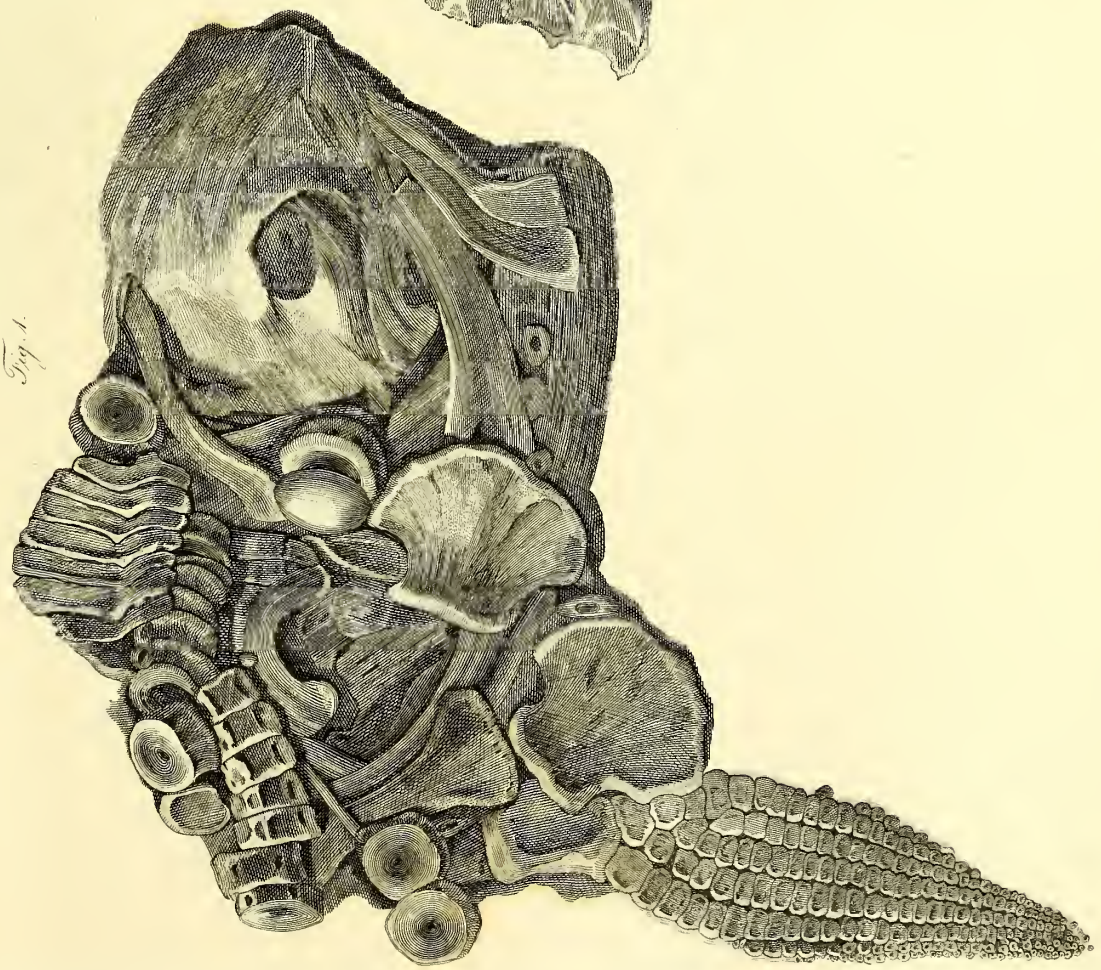


Fig. 1.

Will.m Clift del.

Js. Basire sc.

TAB. LXV.

LECTURE SEVENTH.

A transverse section of the bones of the nose of the proteosaurus. Of the natural size.

From the teeth that have been sawn through, their growth and succession appear to resemble that of the crocodile.

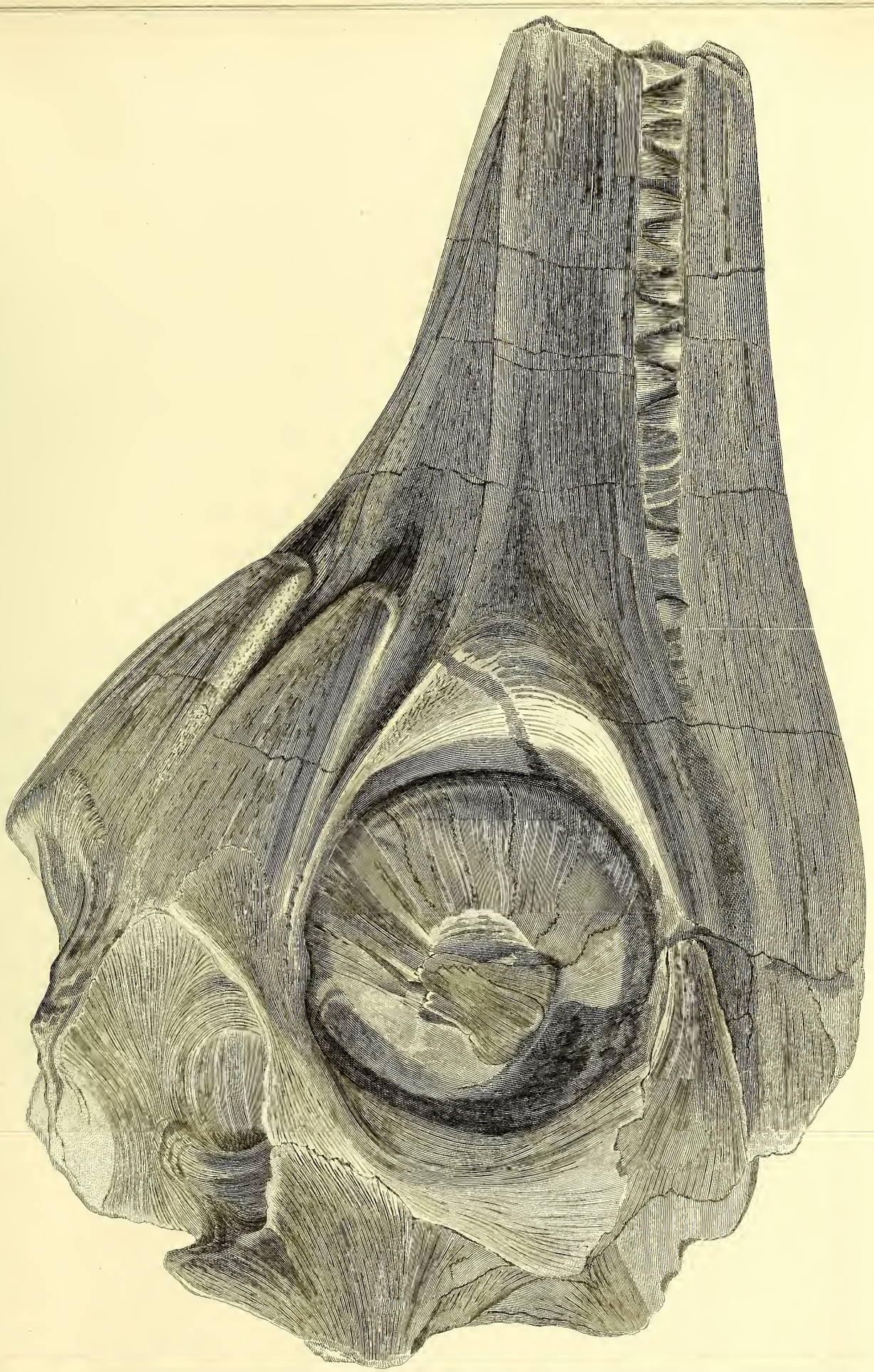
Wm. Clift del.

J. Basire sc.

TAB. LXVI.

LECTURE SEVENTH.

Portion of the skull of the proteosaurus, in which the nasal bones have not been injured. Half the natural size.



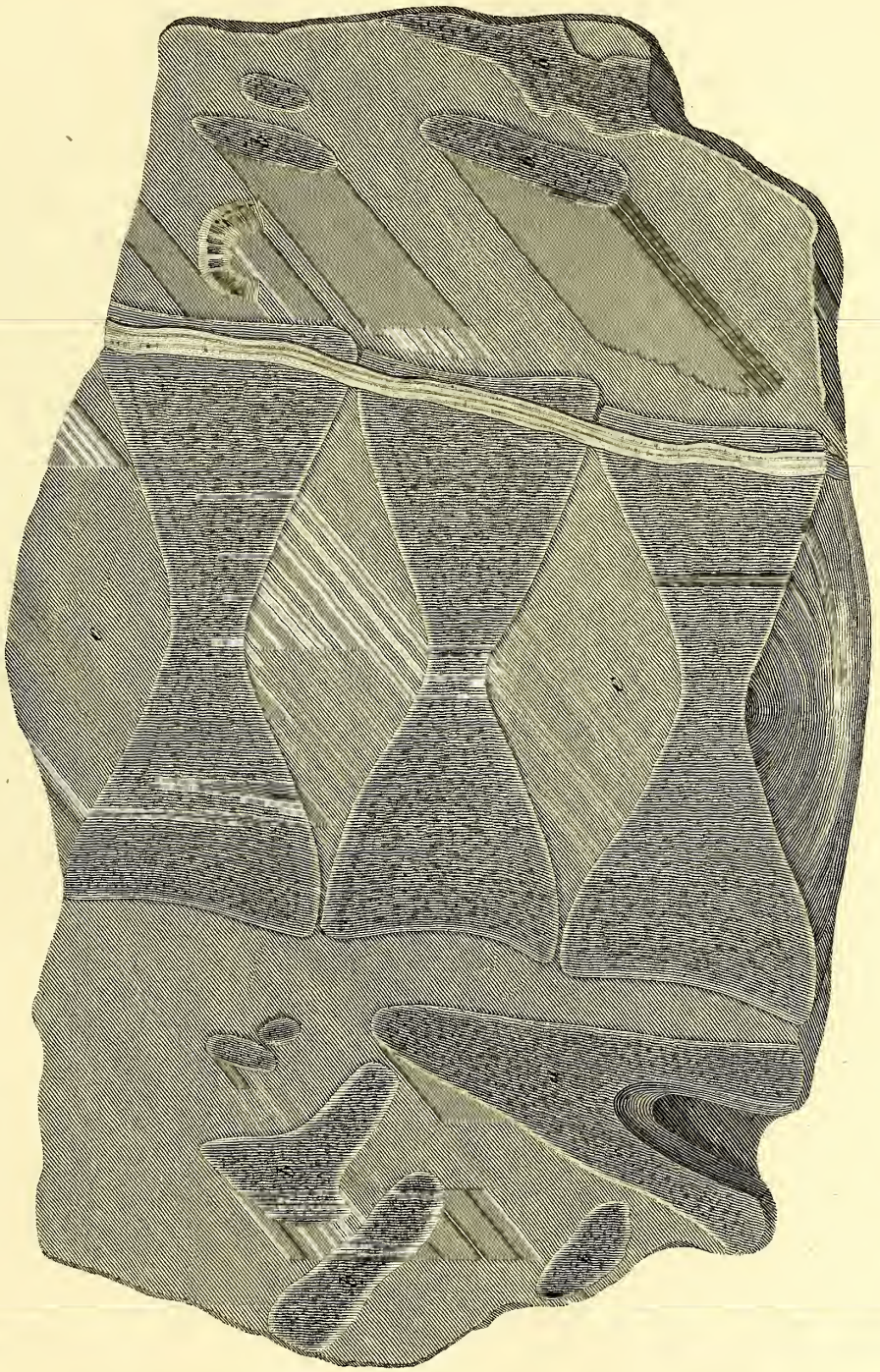
Wm. Clift del.

J. Basire. sc.

TAB. LXVII.

LECTURE SEVENTH.

A section of three vertebræ of the proteosaurus, to show the cavities between them. Of the natural size.



Natural Size.

W. Clift del.

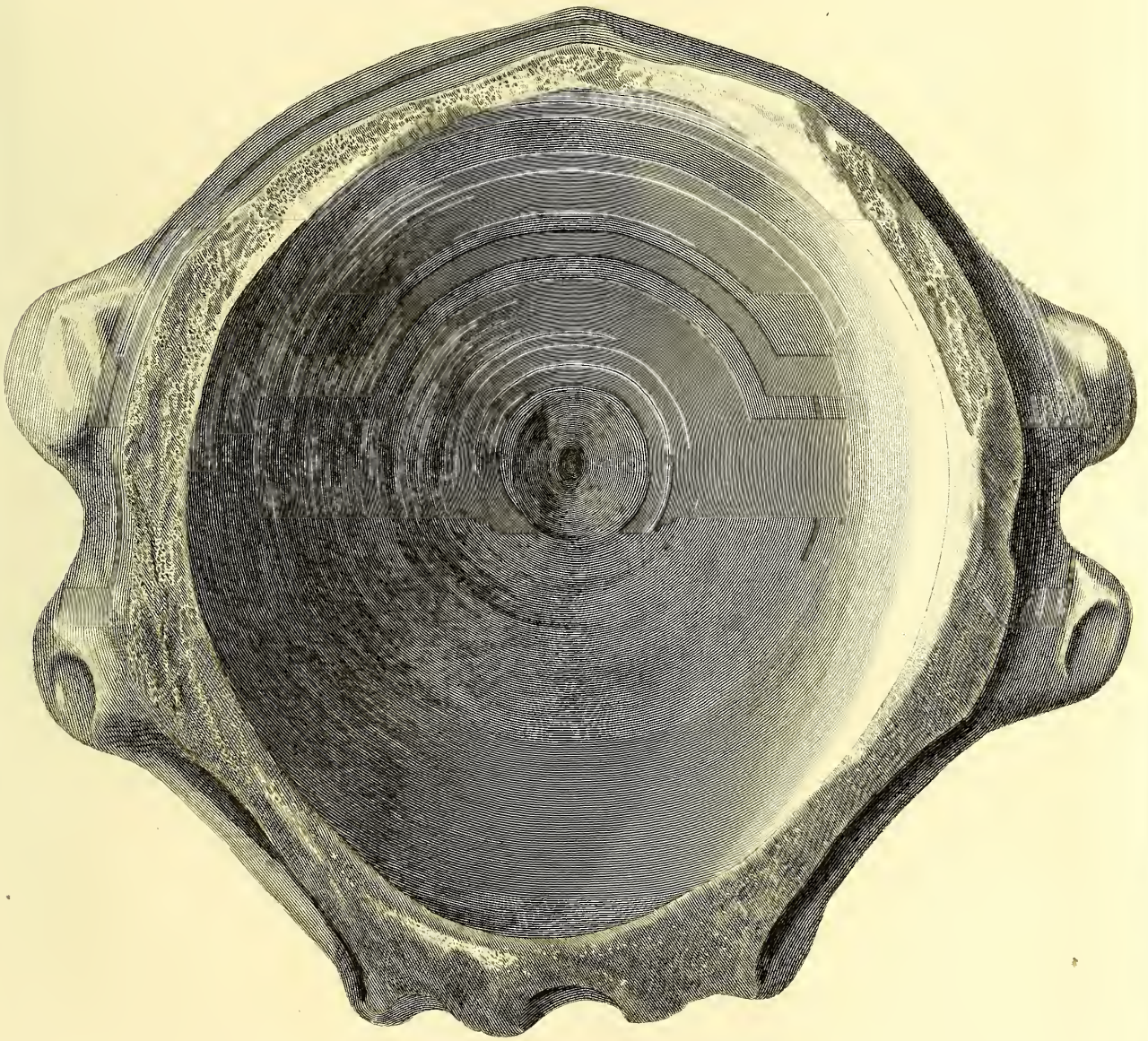
P. Basire sc.

TAB. LXVIII.

LECTURE SEVENTH.

A single vertebra of the proteosaurus. Of the natural size.

TAB. LXVIII.



Wm Clift. del.

J.s Basire, sc

TAB. LXIX.

LECTURE SEVENTH.

Several ribs of the proteosaurus, so pressed upon as to put on a fluted appearance.

TAB. LXIX.

Natural

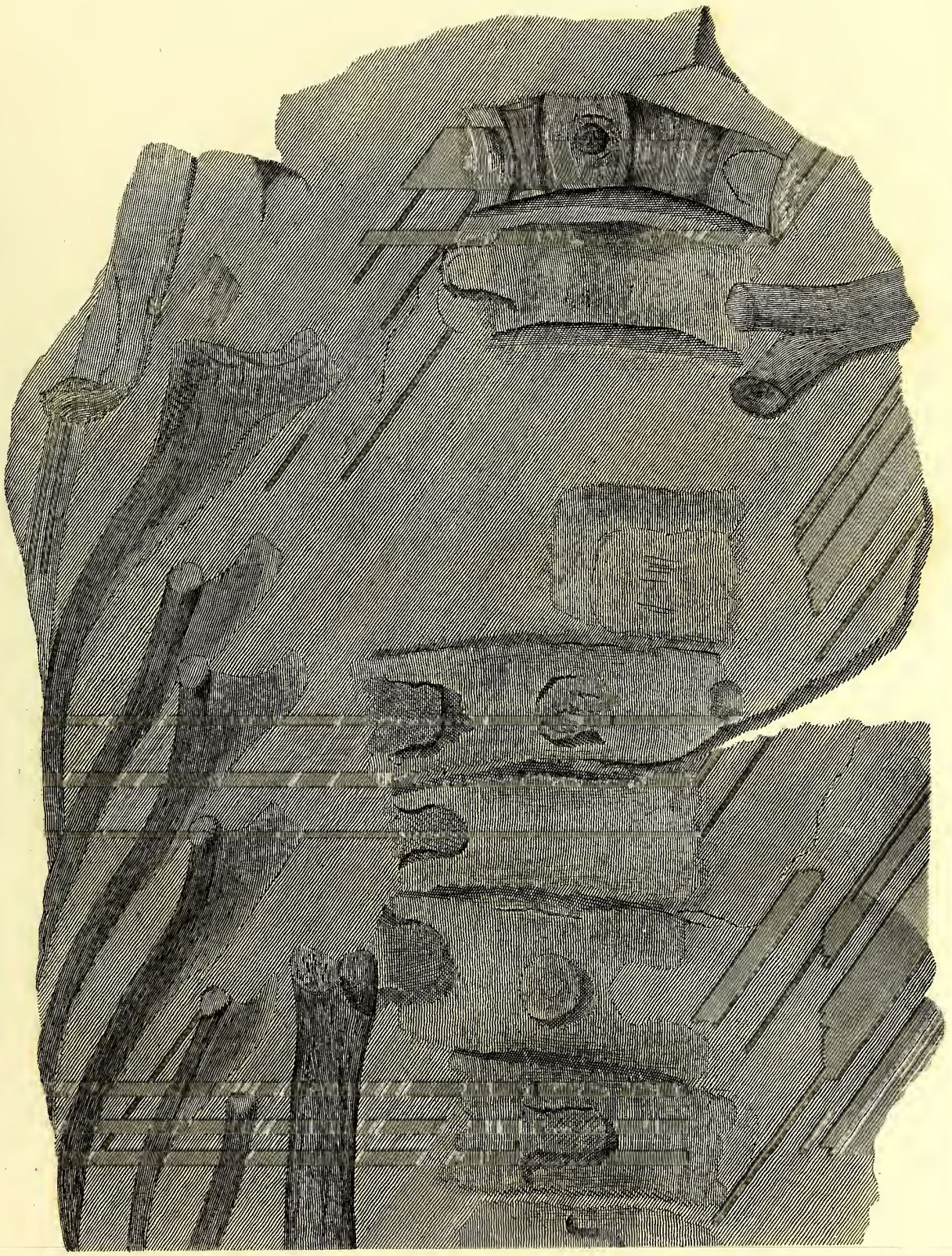
W. Clift del.

J.ᵉ Busière sc.

TAB. LXX.

LECTURE SEVENTH.

To show the modes of articulation between the ribs and vertebræ of the proteosaurus. The parts of the natural size.

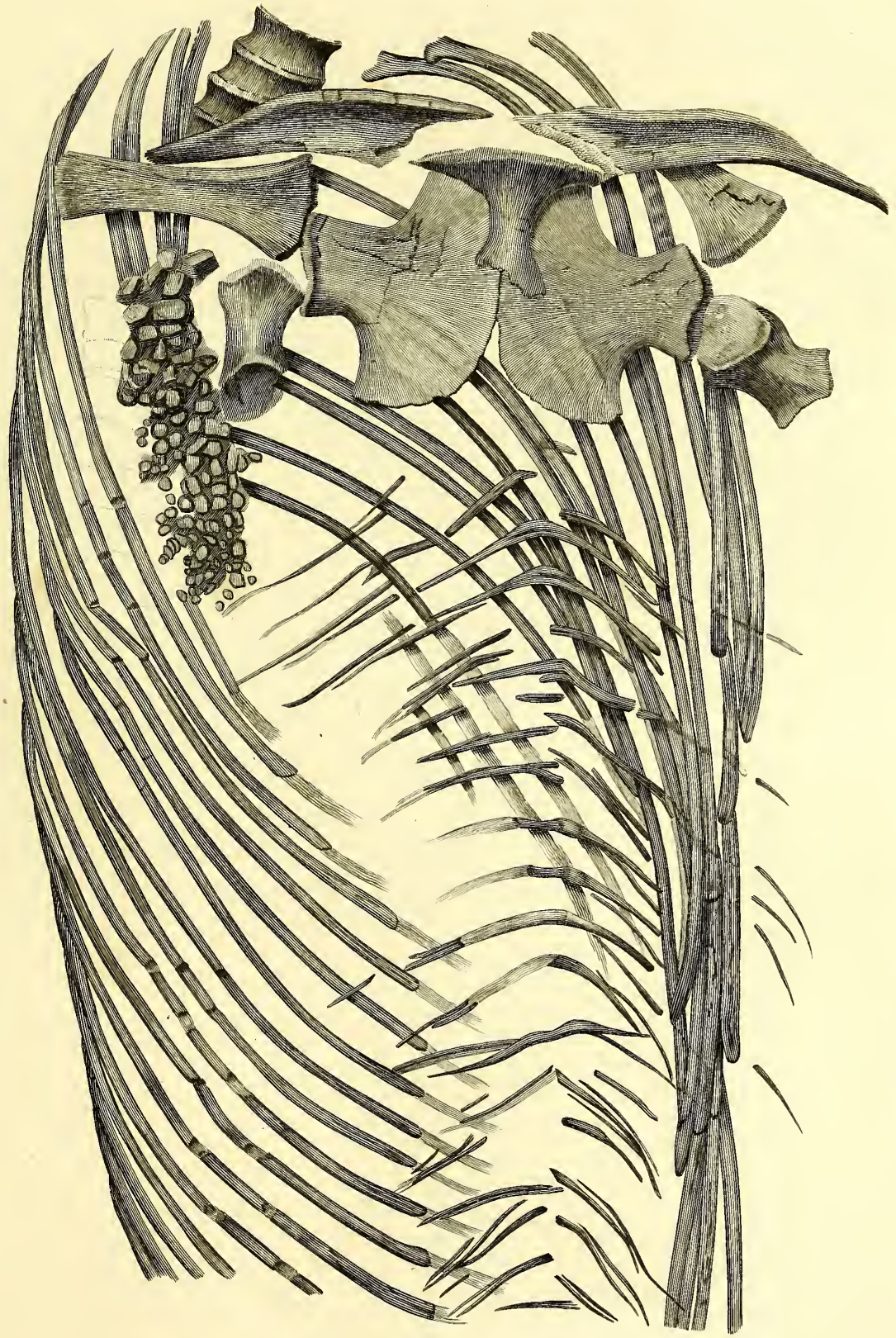


J.t Basire sc.

TAB. LXXI.

LECTURE SEVENTH.

The ribs and sternum of the proteosaurus, the anterior portions showing that the ribs are not cartilaginous, but bony. Of the natural size.



De la Beche del.

J. Basire sc.

TAB. LXXII.

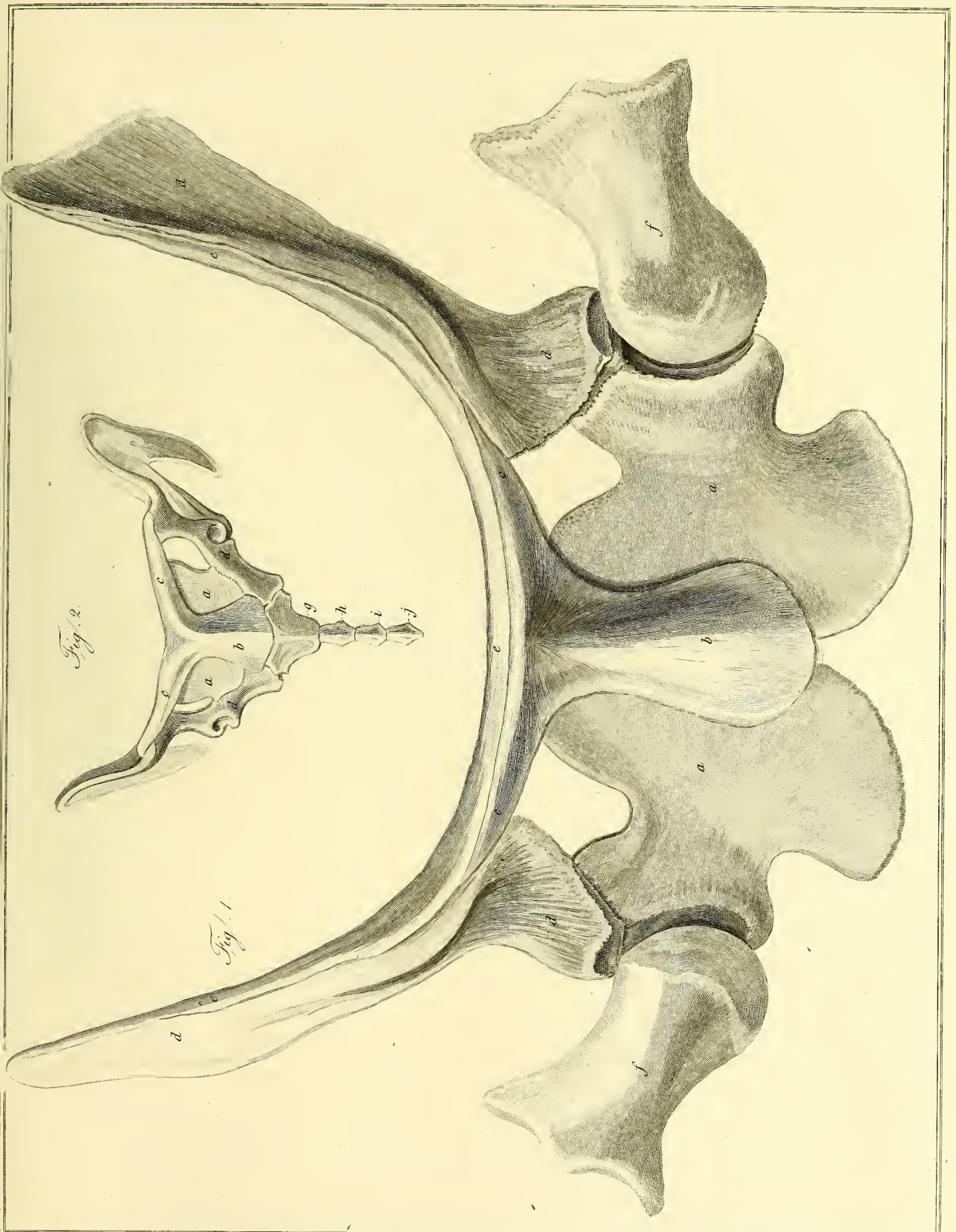
LECTURE SEVENTH.

Fig. 1. The sternum and bones connected with it in the proteosaurus.

a a. The two flat bones of the sternum.
b. A flat bone lapping over them.
c c. Two processes uniting the sternum to the scapula.
d d. The two scapulæ.
e e e. A substitute for a clavicle.
f f. The two upper bones of the paddle.

Fig. 2. The sternum of the ornithorhyncus paradoxus, to show their great similarity. The parts of the natural size.

TAB. LXXII.



W. Clift, del.

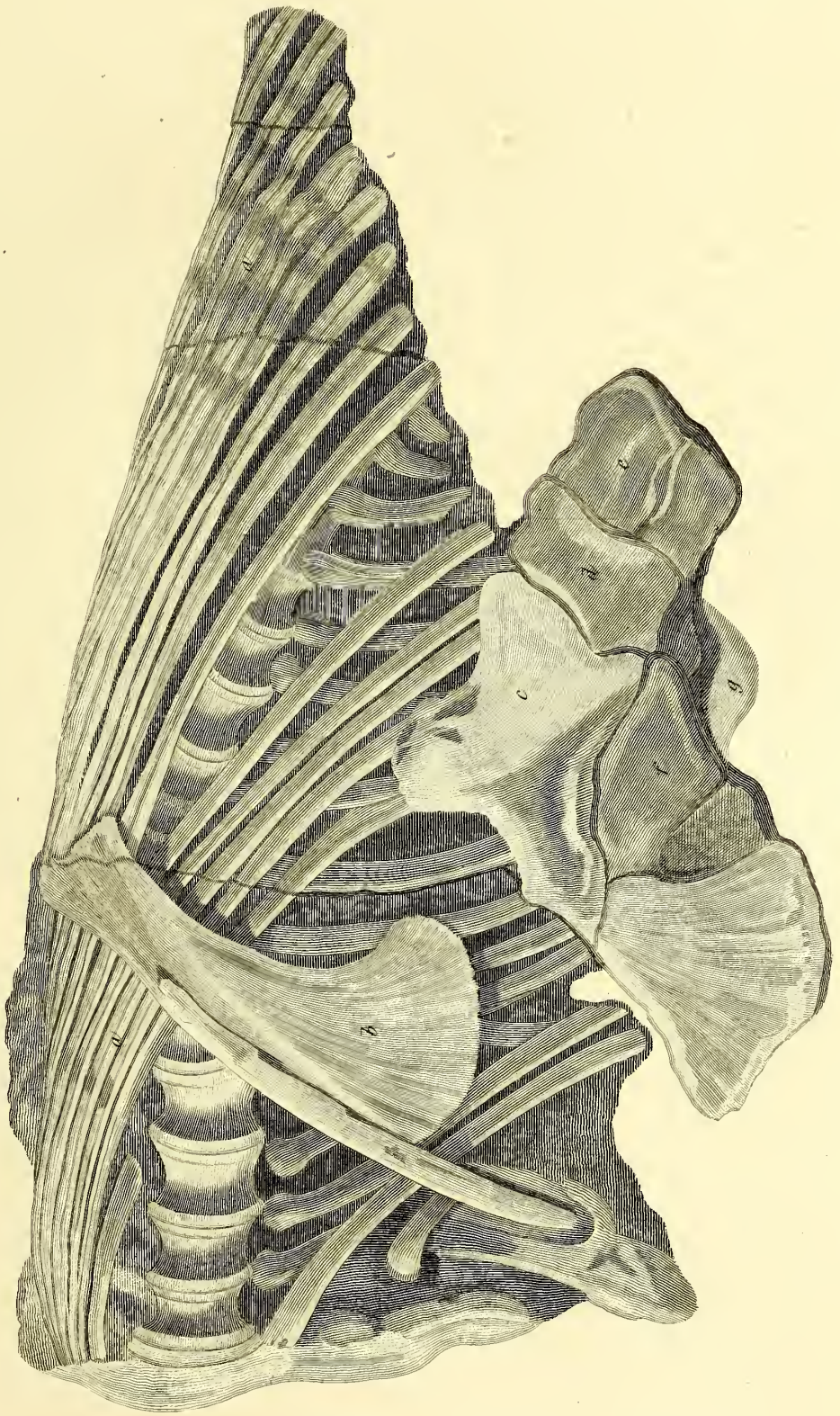
P. Bassire, sc.

TAB. LXXIII.

LECTURE SEVENTH.

The chain of vertebræ, the ribs, the scapula, and portion of the sternum of the proteosaurus.

TAB. LXXIII.



Scale. Three Inches to a Foot.

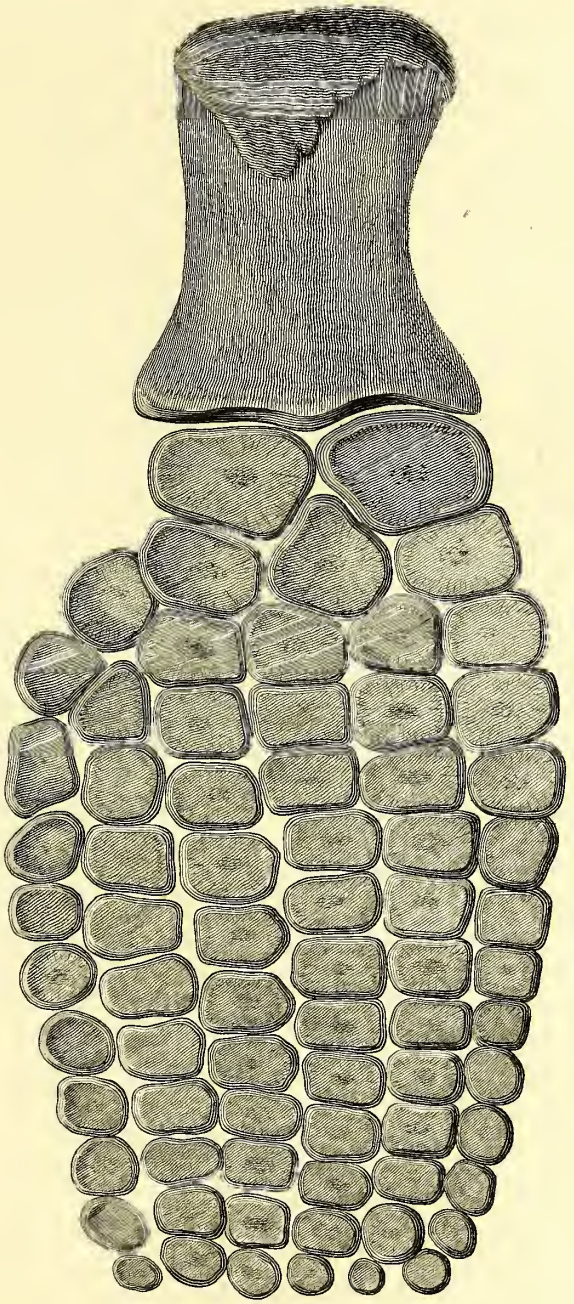
W. Clift del.

P. Basire sc.

TAB. LXXIV.

LECTURE SEVENTH.

The anterior paddle of the proteosaurus. Of the natural size.



W. Clift. del.

J.s Basire sc.

TAB. LXXV.

LECTURE SEVENTH.

Fig. 1. The scapula and a mutilated anterior paddle of the proteosaurus. Of the natural size.

Fig. 2. The scapula and fin of the squalus acanthias.

Fig. 1.

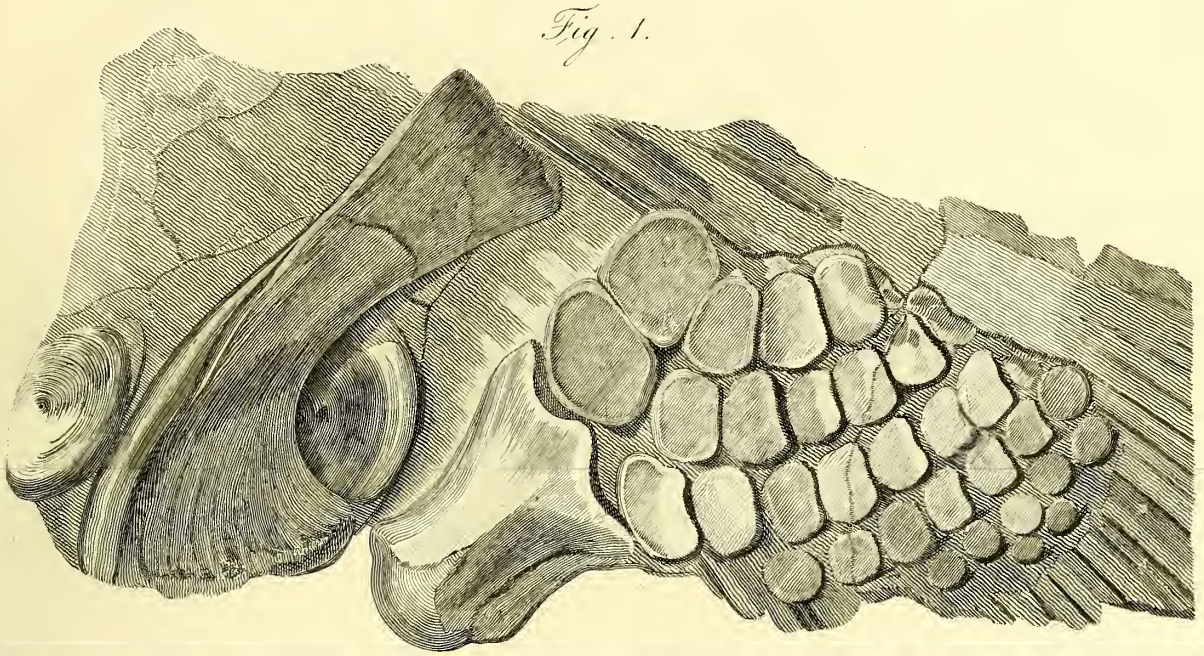
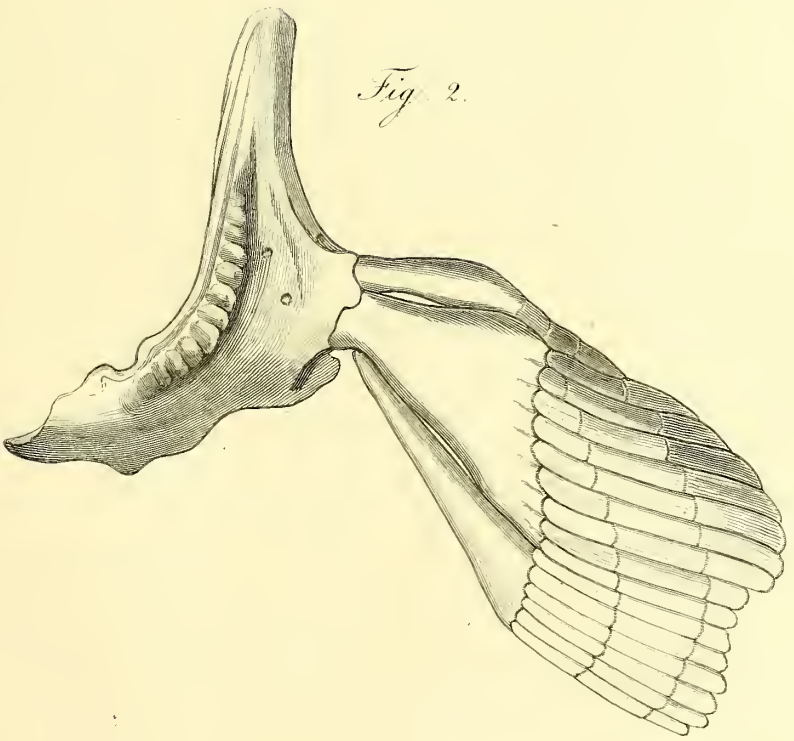


Fig. 2.



Wm Clift del.

F. Basire sc.

TAB. LXXVI.

LECTURE SEVENTH.

The specimen of a large bone belonging to the posterior paddle of the proteosaurus, corresponding to the os femoris of quadrupeds. Of the natural size.

TAB. LXXVI.

W. Clift. del.

J. Basire. sc

TAB. LXXVII.

LECTURE SEVENTH.

Fig. 1. The fin of the squalus maximus.

Fig. 2. Fibres of it unravelled.

Fig. 1.

Two Inches to a Foot

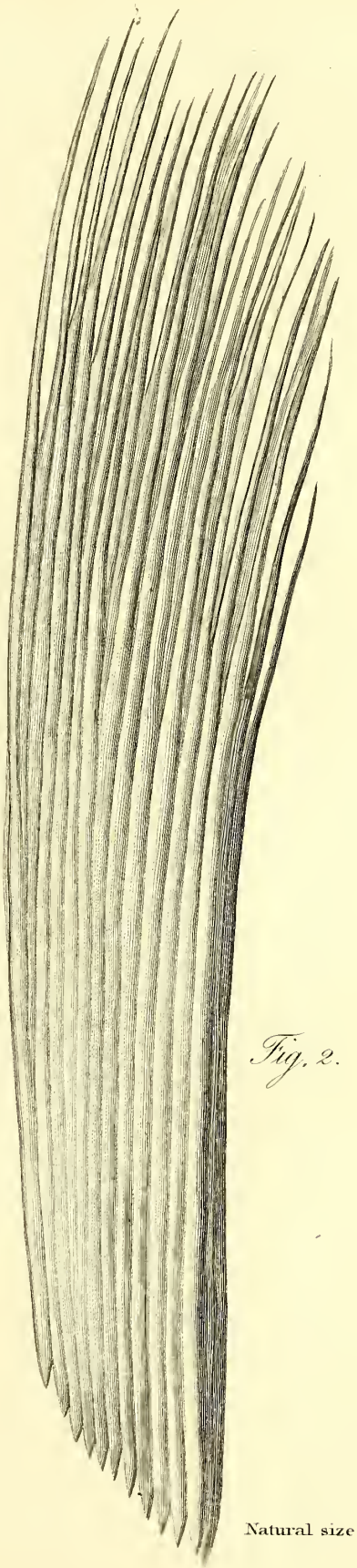


Fig. 2.

Natural size

J. Howship del.

J. Basire sc.

TAB. LXXVIII.

LECTURE SEVENTH.

Lacerto jacko. Of the natural size.

TAB. LXXVIII.

W. Clift. del.

J.P. Basire. sc.

TAB. LXXIX.

LECTURE SEVENTH.

Fig. 1. Is the upper surface of the toe, to show the manner in which it spreads laterally.

Fig. 2. The under surface of the same toe to show the orifices of the pockets or suckers. These two figures are magnified one hundred times.

Fig. 3. Two portions of two contiguous suckers, showing that the fringed termination is only continued from the ends of the alternate membranous partitions. The parts are magnified two thousand five hundred times.

Fig. 4. A front view of a longitudinal section, to show the bones and the muscles.

Fig. 5. A side view of a longitudinal section. These two are magnified one hundred times.

Fig. 6. A side view of a portion of some of the suckers, showing the insertion of the muscles. Magnified two thousand five hundred times.

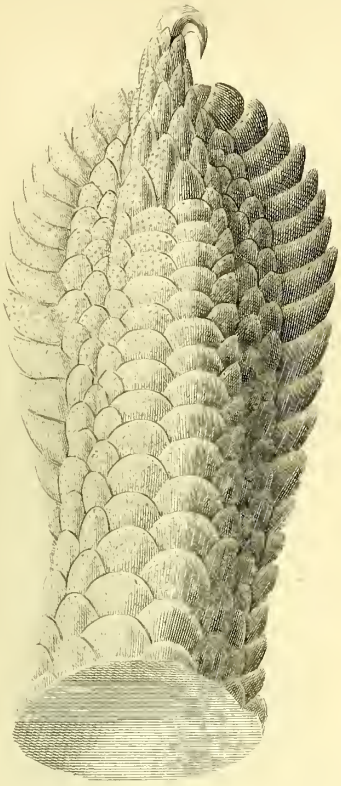


Fig. 1.

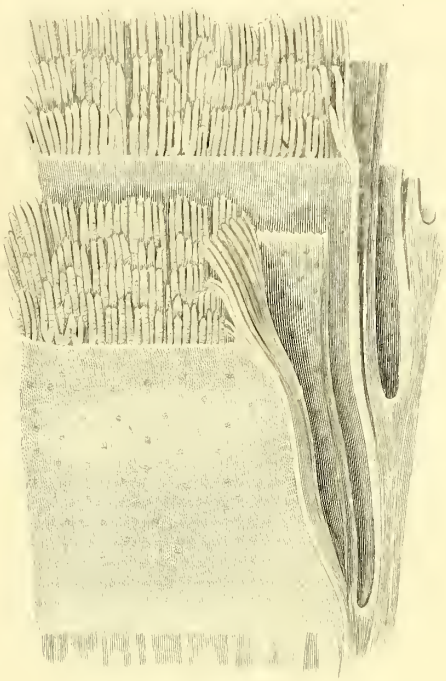


Fig. 3.

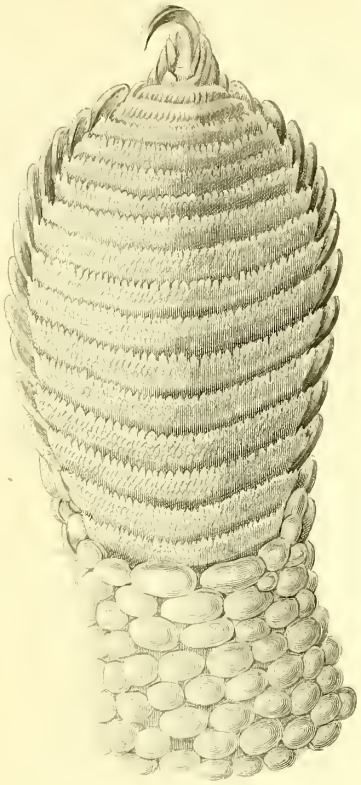


Fig. 2.

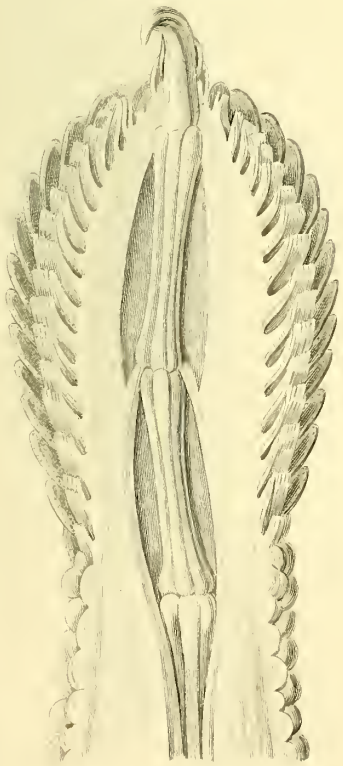


Fig. 4.

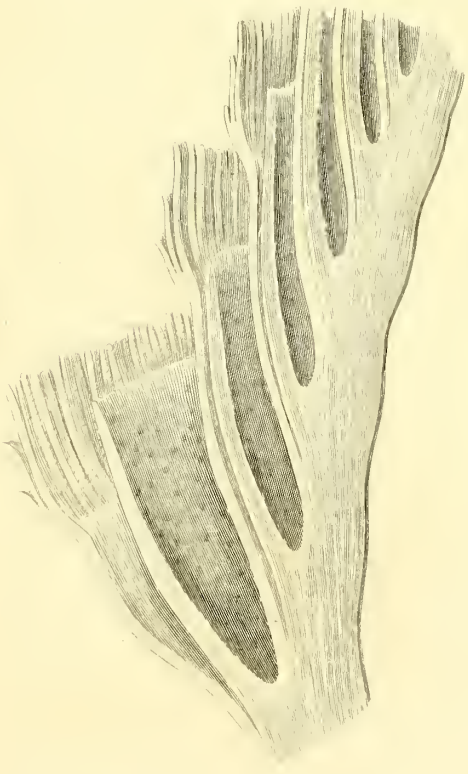


Fig. 6.

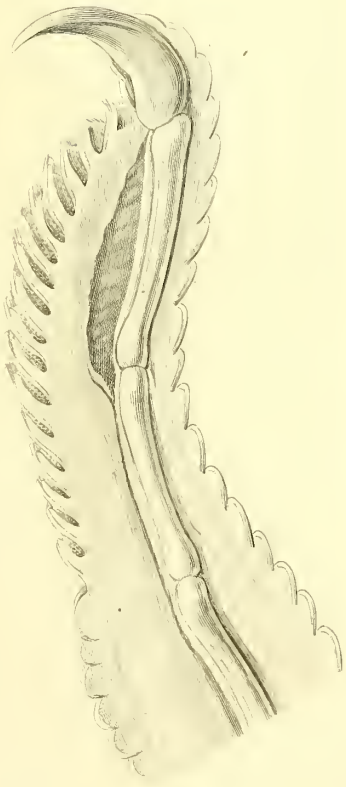


Fig. 5.

Franz. Bauer. del.

J.s Basire sc.

TAB. LXXX.

LECTURE SEVENTH.

Fig. 1. Under surface of one of the toes of jacko. Natural size.

Fig. 2. The bones and all the internal parts much magnified.

Fig. 3. The apparatus on the head of the echineis remora; one half of the plates open, the other shut.

Fig. 4. Adams's plate of the foot of the house-fly. Published in 1746.

Fig. 5. Christofle Keller, painter at Nuremberg. View published in 1766.

Fig. 1.

Fig. 2.

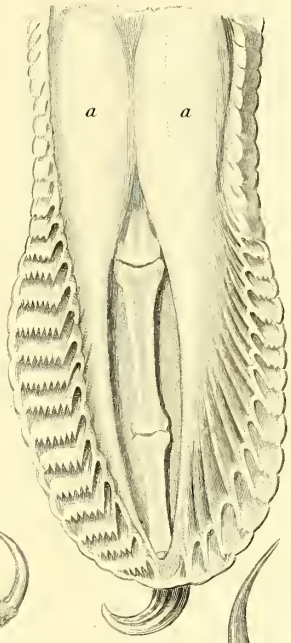
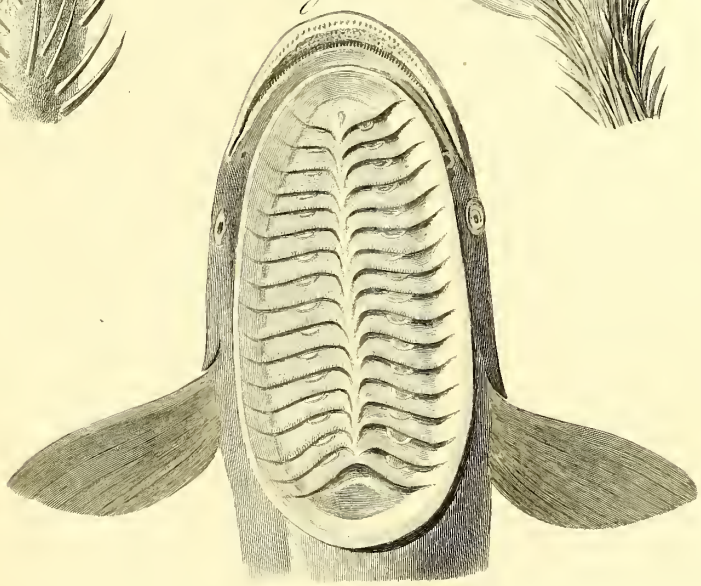


Fig. 4.

Fig. 5.

Fig. 3.



TAB. LXXXI.

LECTURE SEVENTH.

Fig. 1. A left front leg of the blue-bottle fly, musca vomitoria. Magnified one hundred times.

Fig. 2. A view of the under side of the last joint of the toe, with the two suckers expanded, as seen when the fly is walking against gravity.

Fig. 3. Side view of ditto.

Fig. 4. Upper side of ditto. These three figures are magnified six thousand four hundred times.

Fig. 5. View of the under side of a single sucker of a dead fly.

Fig. 6. Side view of ditto.

Fig. 7. Upper side of ditto. These three figures are magnified six thousand four hundred times.

Fig. 8. Left front leg of bibio febrilis. (Latr.) Magnified one hundred times.

Fig. 9. The under side of the last joint of the toe of ditto.

Fig. 10. Side view of ditto.

Fig. 11. Upper side of ditto. These three figures are magnified six thousand four hundred times.

Fig. 1.

Fig. 3

Fig. 2.

Fig. 4.

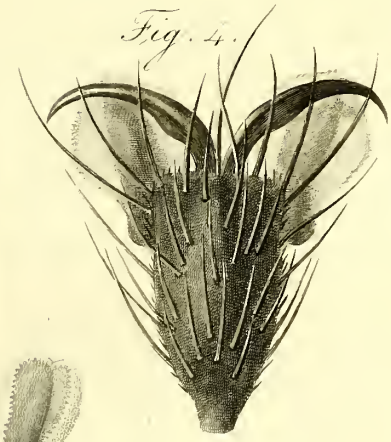


Fig. 5.

Fig. 6.

Fig. 7.

Fig. 8.

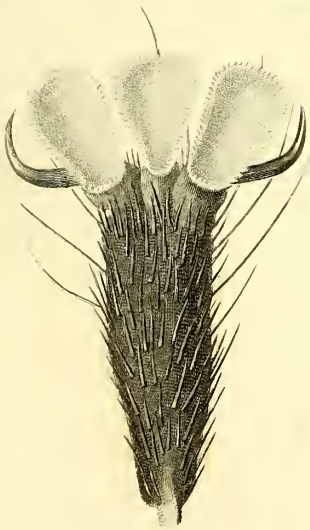


Fig. 9.

Fig. 10.

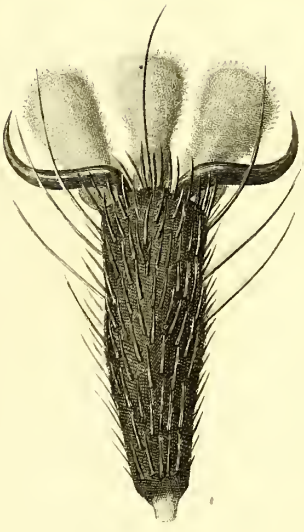


Fig. 11.

Franz Bauer, del.

James Basire sc.

TAB. LXXXII.

LECTURE SEVENTH.

Fig. 1. The left front leg of cimbex lutea. (Fabr.)

Fig. 2. Side view of ditto.

Fig. 3. Under side of the left front leg. These three magnified one hundred times.

Fig. 4. Last joint of toe, upper side. Magnified four hundred times.

Fig. 5. Under side of toe, and extremity of the shank. Magnified four hundred times.

Figs. 6, and 7. Upper and side views of two joints of the toe. Magnified four hundred times, to show the plantar suckers.

Figs. 8, and 9. Calces. Magnified one thousand six hundred times, to show the form of the sucker with which each is terminated.

Fig. 1.

Fig. 2.

Fig. 4.

Fig. 3.

Fig. 5

Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9.

Franz Bauer, del.

James Basire sc.

TAB. LXXXIII.

LECTURE SEVENTH.

Figs. 1, and 2. The upper and under side of the left front leg of the male dytiscus marginalis. Magnified twenty-five times.

Figs. 3, 4, and 5. Upper, under, and side view of tarsus. Magnified one hundred times.

Figs. 6 and 7. Front and side view of the sucker (a, and b), fig. 5. Magnified one hundred times.

Fig. 8. Front view of the sucker (c), fig. 5. Magnified four hundred times.

Fig. 9. Several of the suckers (c), fig. 5. Magnified four hundred times.

Fig. 10. Second or middle left leg of dytiscus marginalis. Magnified twenty-five times.

Fig. 11. Tarsus of ditto, under side. Magnified one hundred times.

Fig. 12. Several of the suckers (a), fig. 11. Magnified nine hundred times.

Figs. 13, 14, and 15. Suckers (a), fig. 11. Magnified forty thousand times to show the articulation between the peduncle and the sucker, and the joint by which the peduncle is attached to the tarsus.

Fig. 16. The hinder left leg of dytiscus marginalis, male. Magnified twenty-five times.

Fig. 17. The left front leg of dytiscus marginalis, female. Magnified twenty-five times.

TAB. LXXXIII.

Fig. 1.

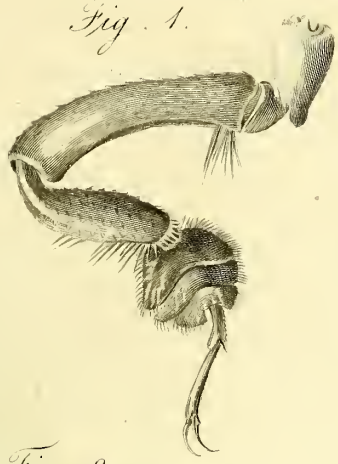


Fig. 17.

Fig. 2.

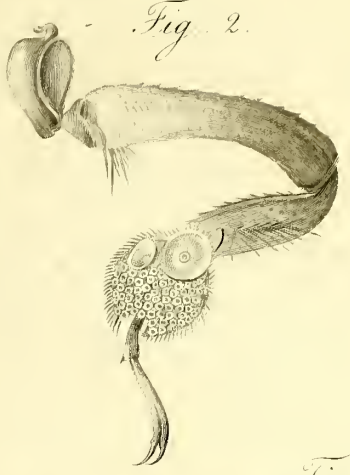


Fig. 3.

Fig. 4.

Fig. 5.

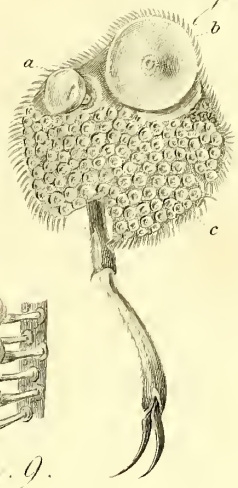


Fig. 8.

Fig. 6.

Fig. 7.

Fig. 9.

Fig. 10.

Fig. 11.

Fig. 16.

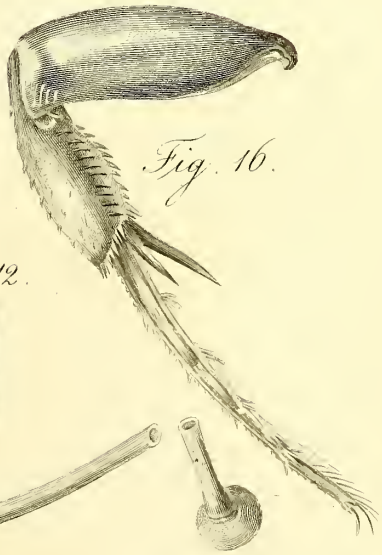


Fig. 12.

Fig. 13.

Fig. 14.

Fig. 15.

Franz Bauer, del.

James Basire, sc.

TAB. LXXXIV.

LECTURE SEVENTH.

Fig. 1. The left front leg of a species of the genus gryllus (Fabr.), with a cerulated thorax, from Abyssinia. Magnified nine times.

Fig. 2. A toe of ditto, to show the under side, on which are cushions attached to the first and second joints; *a*, the oval sucker between the claws; *b b b b*, the cushions.

Fig. 3. Ditto, side view.

Fig. 4. Ditto, upper side.

Fig. 5. Vertical section of the organs, fig. 2., *b*.

Fig. 6. Longitudinal section of ditto. All these are magnified one hundred times.

Fig. 7. A front view of the left fore foot of a British species of grashopper, acrydium biguttulum (Latr.), to show that it has the same oval sucker between the claws and the cushions, as in the grashopper from Abyssinia. The parts were drawn from the animal while alive. The Abyssinian grashopper had been preserved in spirit.

Fig. 8. A side view.

Fig. 9. A back view. These three views are magnified two thousand five hundred times.

Fig. 10. A left front leg of a British species of grashopper, locusta varia. (Fabr.) Magnified thirty-six times.

Fig. 11. View of the under side of the toe.

Fig. 12. Side view of ditto.

Fig. 13. Upper side of the toe. These are magnified six hundred and twenty-five times.

The cushions under the joints of the toe in this grashopper resemble in structure those of Abyssinian gryllus, but differ in their form and situation. There is no sucker between the claws.

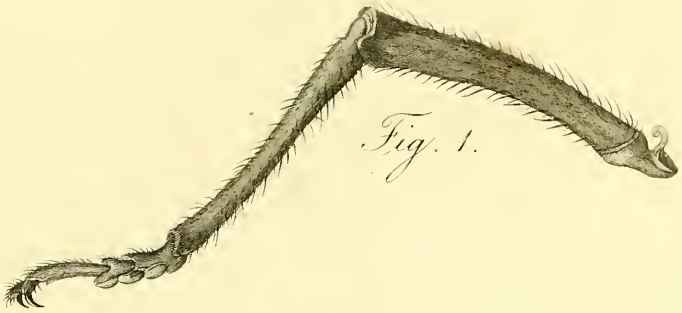


Fig. 1.

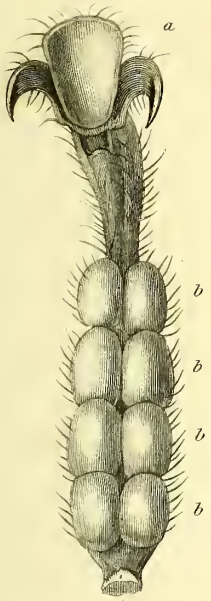


Fig. 2.

Fig. 5.

Fig. 3.

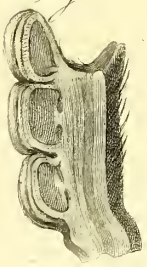


Fig. 6.

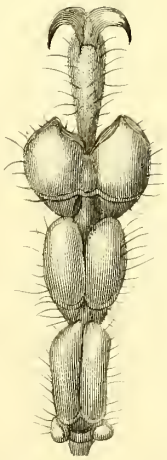
Fig. 4.

Fig. 10.

Fig. 7.

Fig. 9.

Fig. 8.



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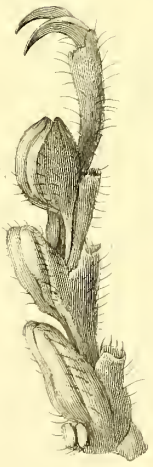

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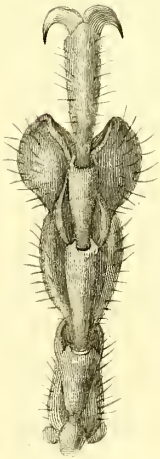


Fig. 13.

Franz Bauer del.

James Basire sc.

TAB. LXXXV.

LECTURE EIGHTH.

Fig. 1. A transverse section of the human eye, the retina viewed through the posterior capsule of the crystalline lens.

a. The termination of the optic nerve.

b. The aperture discovered by Professor Soemmering.

Fig. 2. The same parts after the retina has been disturbed.

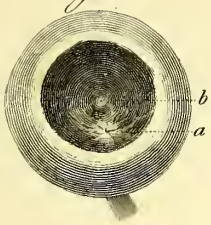
Fig. 3. In the monkey the zone has the appearance of a star with four rays.

Fig. 4. In the bullock there is a tube in the place of a zone.

Fig. 5. In the sheep the tube is visible, but short.

TAB. LXXXV.

Fig. 1.



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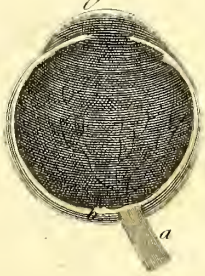

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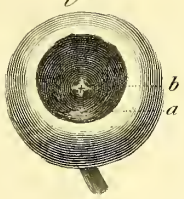


Fig. 5.

Fig. 4.

Basire Sc.

TAB. LXXXVI.

LECTURE EIGHTH.

Fig. 1. Front view of the human eye. Natural size.

Fig. 2. Side view.

Fig. 3. Vertical section. Magnified three diameters.

Fig. 4. External view, the sclerotic coat and cornea removed, showing the vessels. Magnified three diameters.

Fig. 5. A vertical section showing the iris nigrum pigmentum, ciliary processes, the retina, a portion of the medulla of the optic nerve, and the choroid membrane. Magnified three diameters.

Fig. 6. Side view of the crystalline lens, and vitreous humour. Magnified three diameters.

Fig. 7. External view of the iris, the surface of which consists of a plexus of blood-vessels. Magnified three diameters.

Fig. 8. Internal view of the iris, consisting of muscular fibres. Magnified three diameters.

TAB. LXXXVI.

Fig. 3.

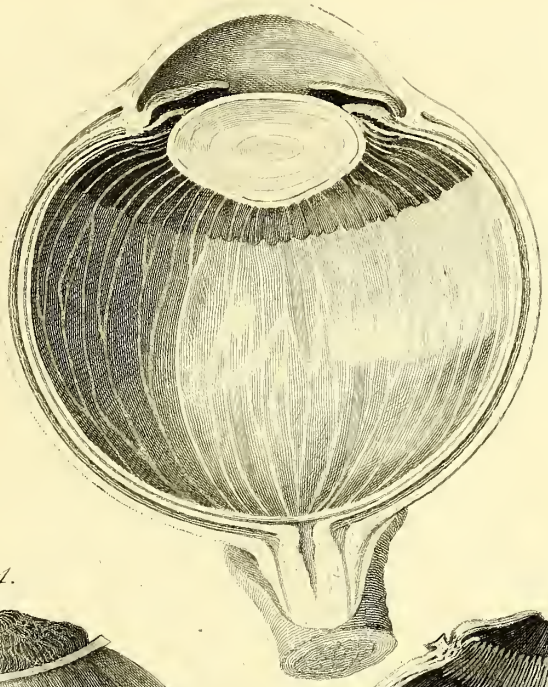
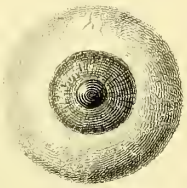


Fig. 1.



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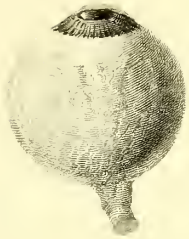
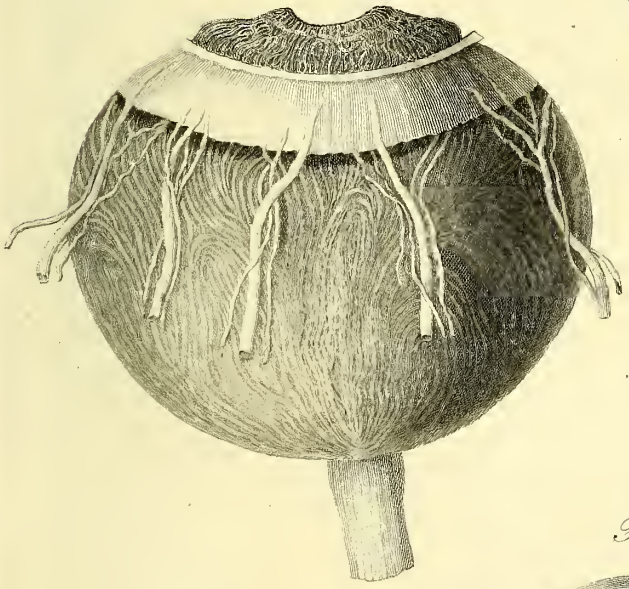


Fig. 4.



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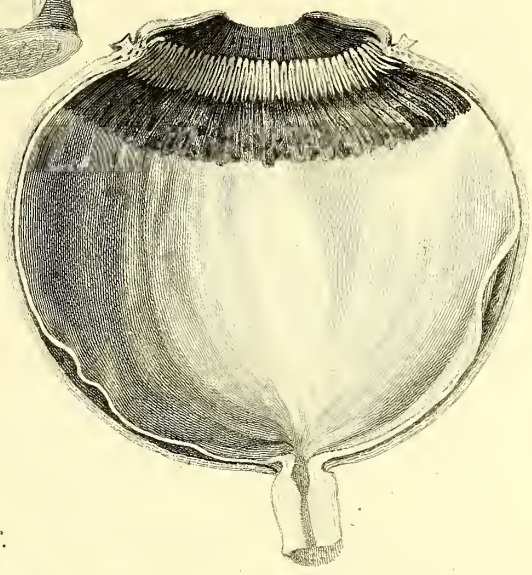

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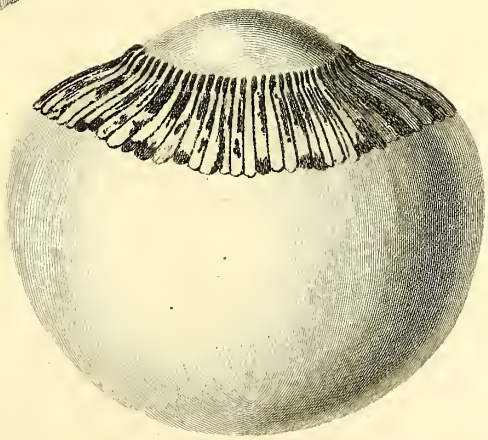

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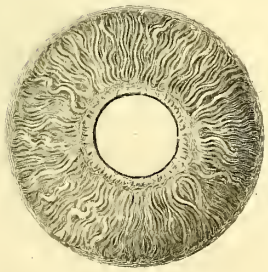

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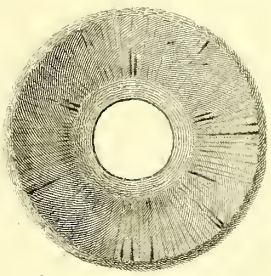

Franz. Bauer del.

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TAB. LXXXVII.

LECTURE EIGHTH.

Fig. 1. Internal view of a portion of the iris of the human eye. Magnified ten diameters.

a a. The orbicular fibres.

b b. The radiated fibres.

Fig. 2. Internal view of a portion of the human eye.

a a. Small portion of the iris, with the pigment.

b b. Ciliary processes.

c c. The portion behind these processes, the pigment broken by the removal of the vitreous humour.

d d. Commencement of the retina.

e e. The edge of the choroid coat. All magnified ten diameters.

Fig. 3. External view of the same parts. Magnified ten diameters.

a a. Iris.

b b. Two ciliary processes.

c c. The ligament uniting these parts to the choroid coat.

d d. The ciliary ligament.

e e. The choroid membrane.

Fig. 4. A back view of the ciliary processes, the iris having been removed. Magnified ten diameters.

a a. Ciliary processes.

b b. The ligament fixing these parts to the sclerotic coat.

c c. Ciliary ligament.

d d. Choroid membrane.

Fig. 5. A portion of the capsule of the crystalline lens, the muscular fibres attached to it, and the capsule of the vitreous humour. Magnified ten diameters.

a a. Capsule of the crystalline lens.

b c d. Capsule of vitreous humour.

b b. The bundles of fibres with the pigment impressed upon them.

Fig. 6. A couple of bundles of these fibres, the nigrum pigmentum removed. Magnified twenty diameters.

Fig. 7. Front view of one of the ciliary processes. Magnified twenty diameters.

Fig. 8. The back view, magnified in the same degree.

Fig. 9. External surface of choroid coat. Magnified ten diameters.

TAB. LXXXVII.

Fig. 2.

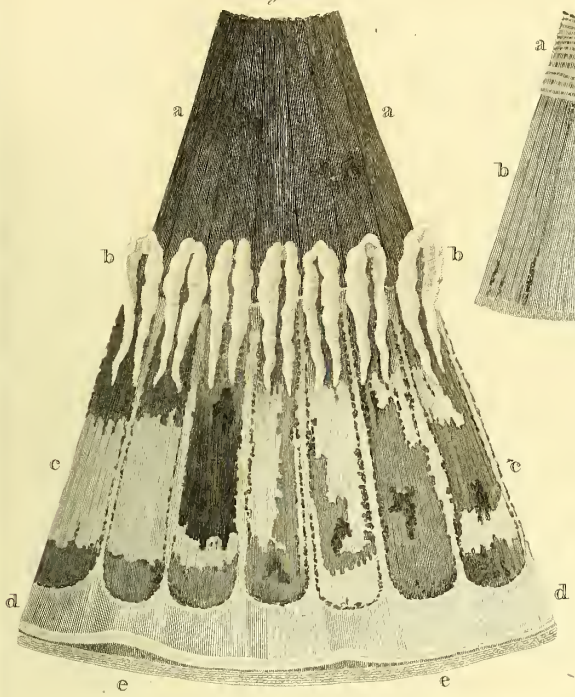
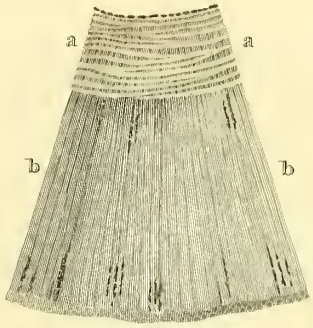


Fig. 1.



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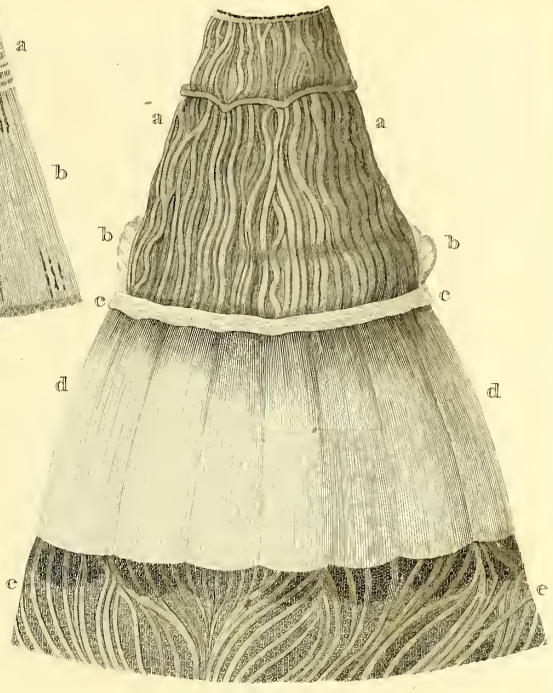
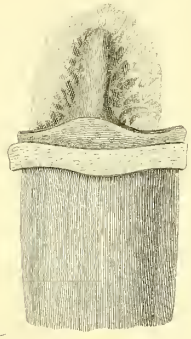


Fig. 9.

Fig. 7.

Fig. 8.



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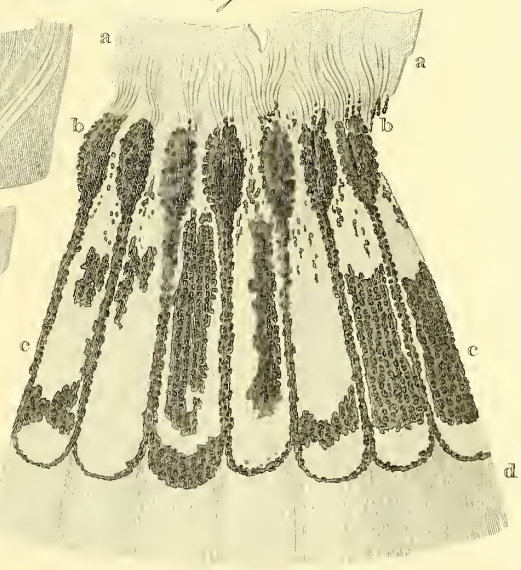

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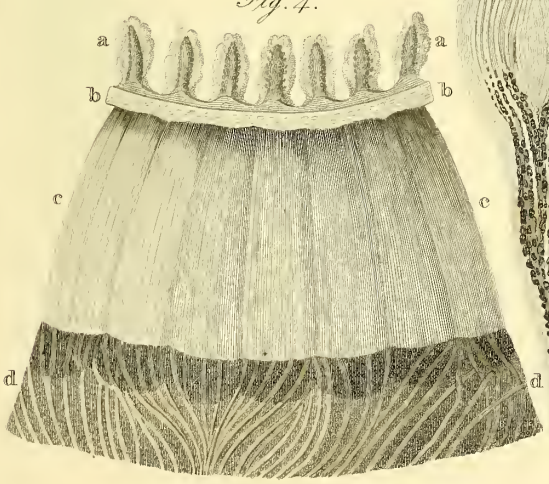

Fig. 6.

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TAB. LXXXVIII.

LECTURE EIGHTH.

Fig. 1. The bullock's eye. Natural size.

Fig. 2. Side view.

Fig. 3. Vertical section.

Fig. 4. Side view of the lens and vitreous humour.

Fig. 5. Outside view of the iris. Magnified two diameters.

Fig. 6. Inside view, nigrum pigmentum removed.

Fig. 7. The same. Magnified eight diameters.

Fig. 8. The iris, ciliary processes, and retina; the choroid coat slightly injected, and nigrum pigmentum partially removed. Magnified six diameters.

Fig. 9. One ciliary process minutely injected. Magnified ten diameters.

Fig. 10. The muscle between the capsule of the lens and vitreous humour. Magnified six diameters.

Fig. 2.

Fig. 1.

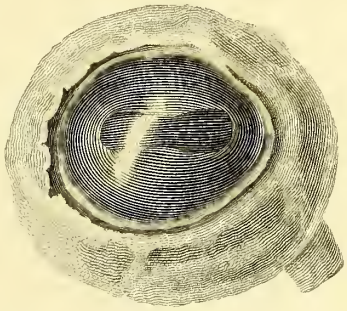
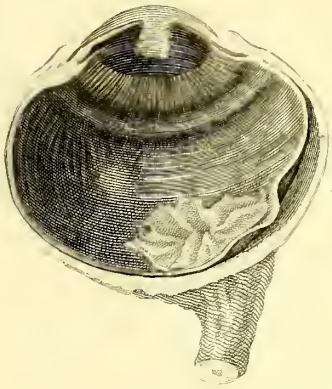


Fig. 3.



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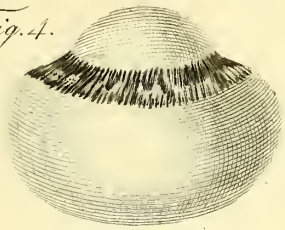

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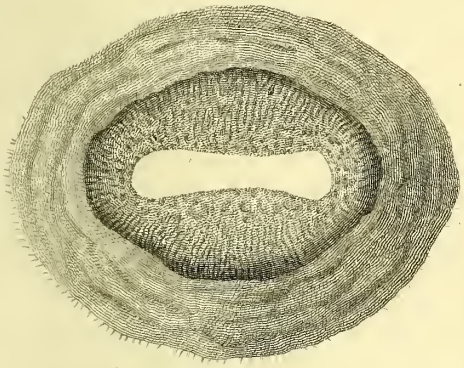

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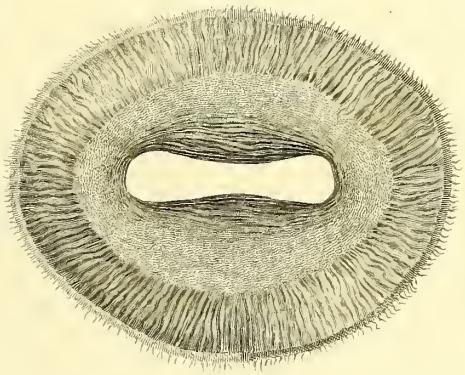

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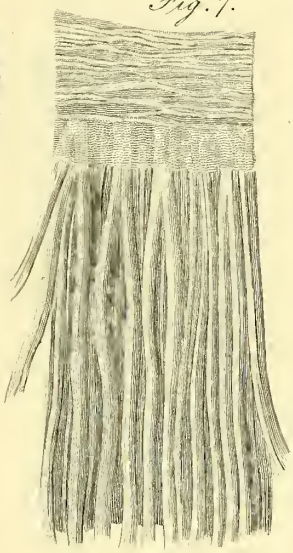


Fig. 8

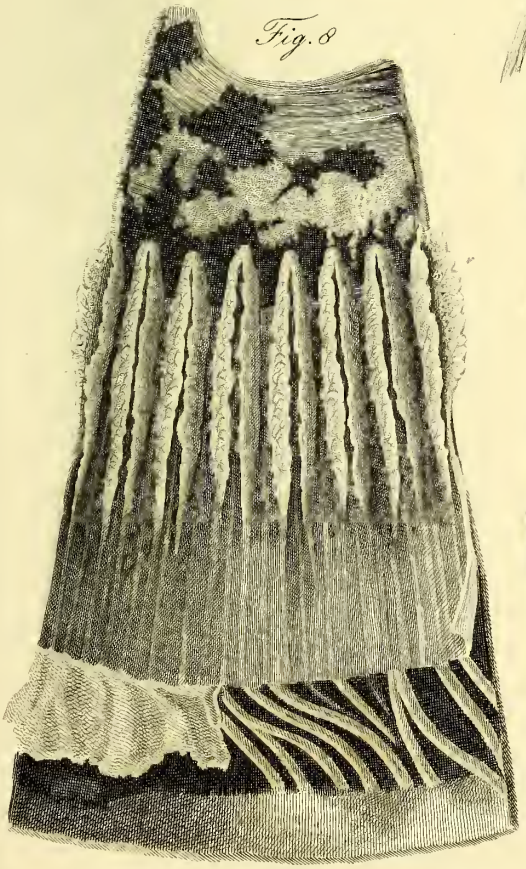
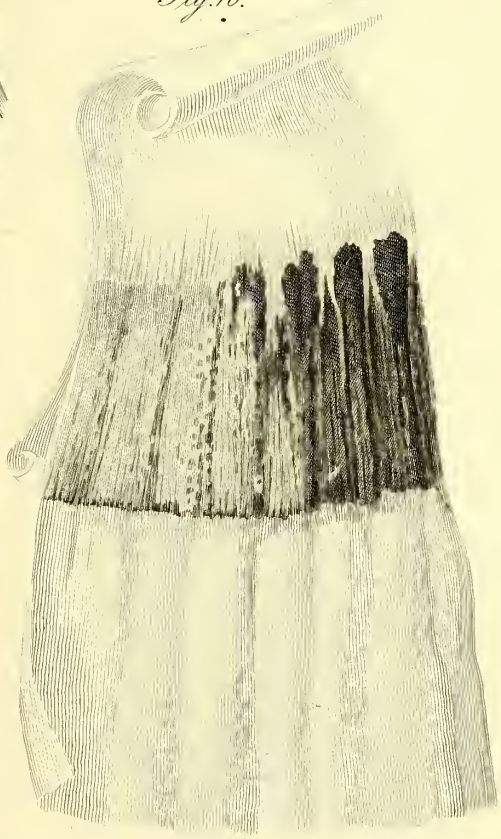


Fig. 9.

Fig. 10.



TAB. LXXXIX.

LECTURE EIGHTH.

Fig. 1. Goose's head; side view.

Fig. 2. Front view of it.

Fig. 3. Front view of the left eye.

Fig. 4. Side view.

Fig. 5. Vertical section. Magnified three diameters.

Fig. 6. Lens and vitreous humour. Magnified three diameters.

Fig. 7. Transverse sections. Magnified three diameters.

Fig. 8. The muscle between the lens and vitreous humour. Magnified ten diameters.

Fig. 1.

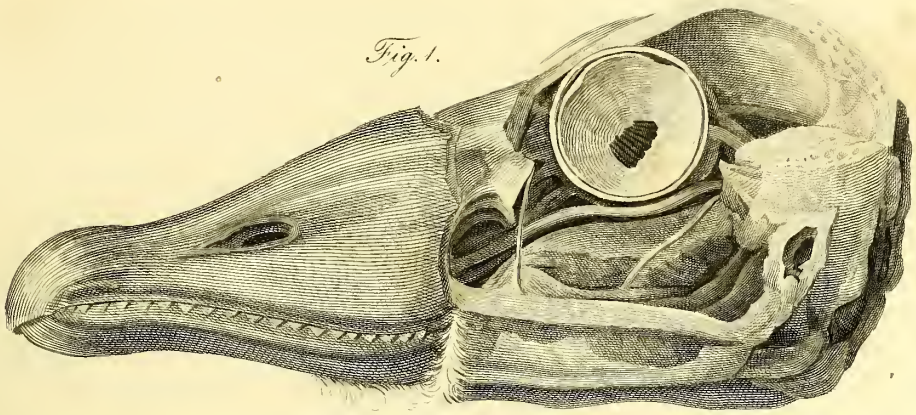
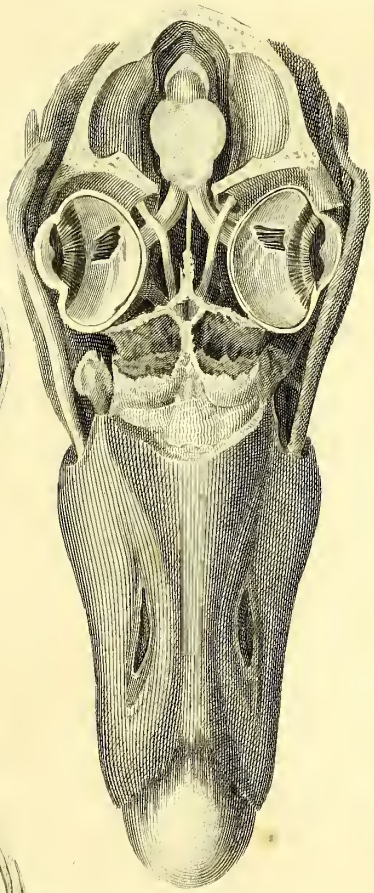


Fig. 3.

Fig. 2.



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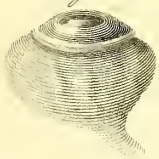

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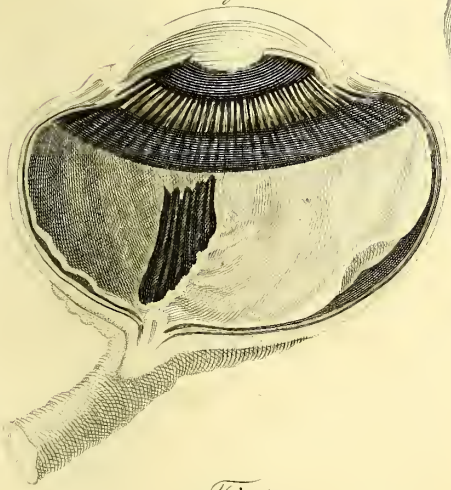

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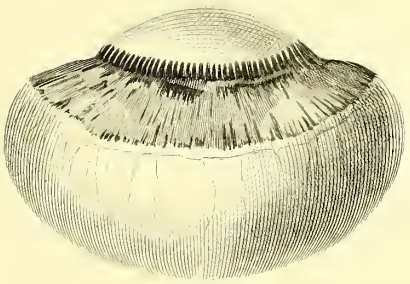

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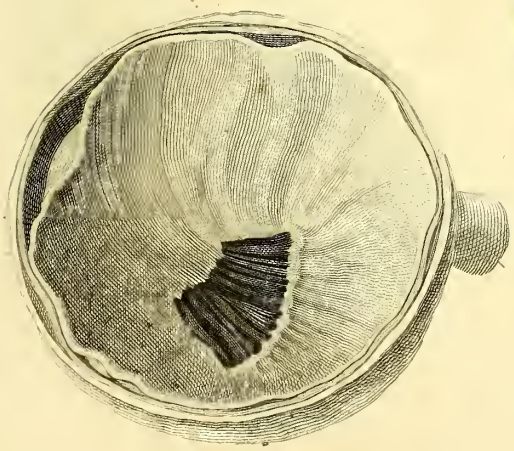

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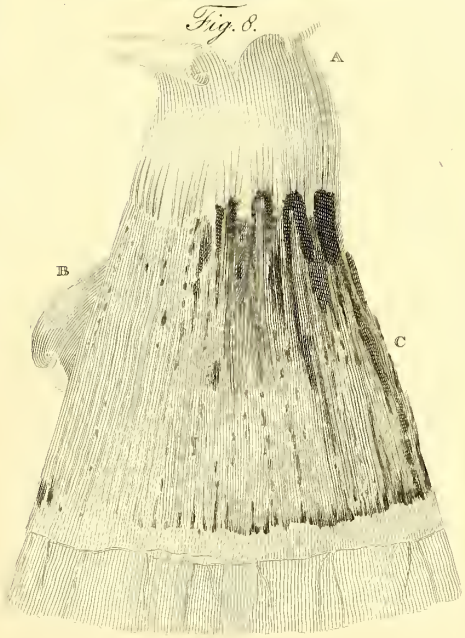

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Fs Basire sc.

TAB. XC.

LECTURE EIGHTH.

Fig. 1. The marsupium of the goose's eye injected. Magnified eight diameters.

Fig. 2. The marsupium unravelled, one half injected; the other not eight diameters.

Figs. 3 and 4. Front and back view of one of the ciliary processes injected. Magnified twenty diameters.

Figs. 5 and 6. External and internal view of the iris. Magnified three diameters.

Figs. 7 and 8. Internal and external view of the anterior hemisphere of the goose's eye. Magnified ten diameters.

Fig. 9. Internal view of a portion of the iris, nigrum pigmentum removed. Magnified ten diameters.

Figs. 10 and 11. Horizontal and vertical section of the lens. Magnified three diameters.

TAB. XC.

Fig. 1.

Fig. 3.

Fig. 4.

Fig. 2.

A B

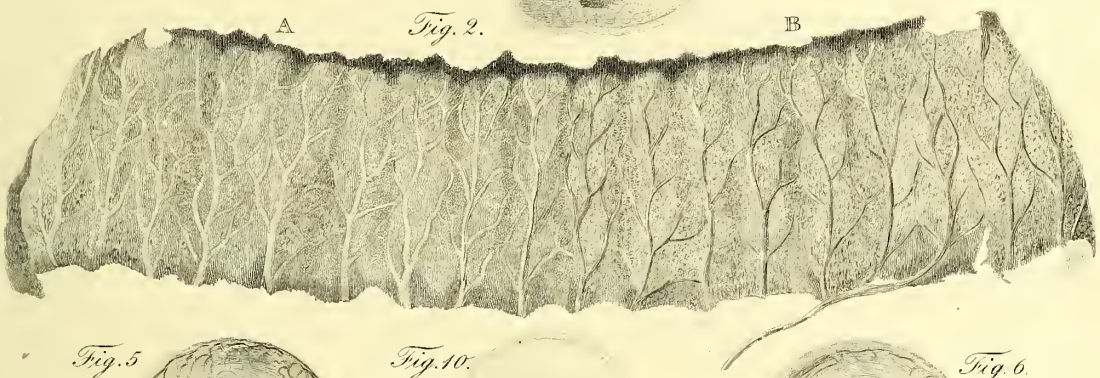
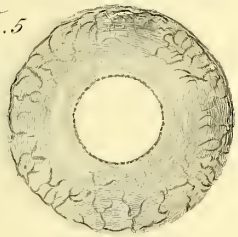


Fig. 5



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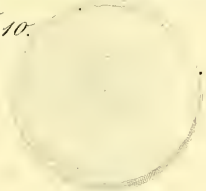

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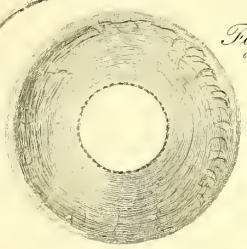

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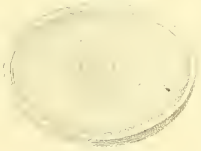

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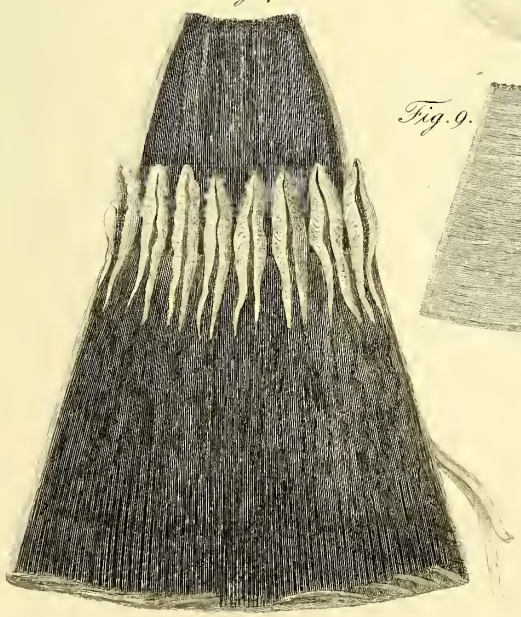
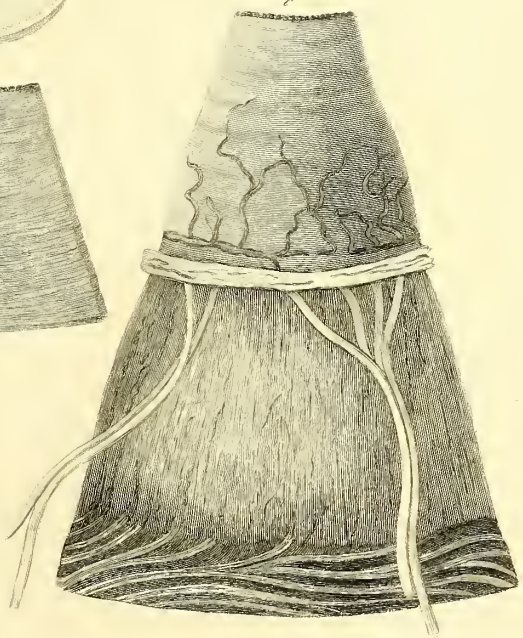


Fig. 9.

Fig. 8



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Js. Basire sc.

TAB. XCI.

LECTURE EIGHTH.

Fig. 1. A portion of retina and Jacob's membrane. Magnified fifty diameters from the goose.

Fig. 2. A small portion of a single layer of the crystalline lens in the goose. Magnified one hundred diameters.

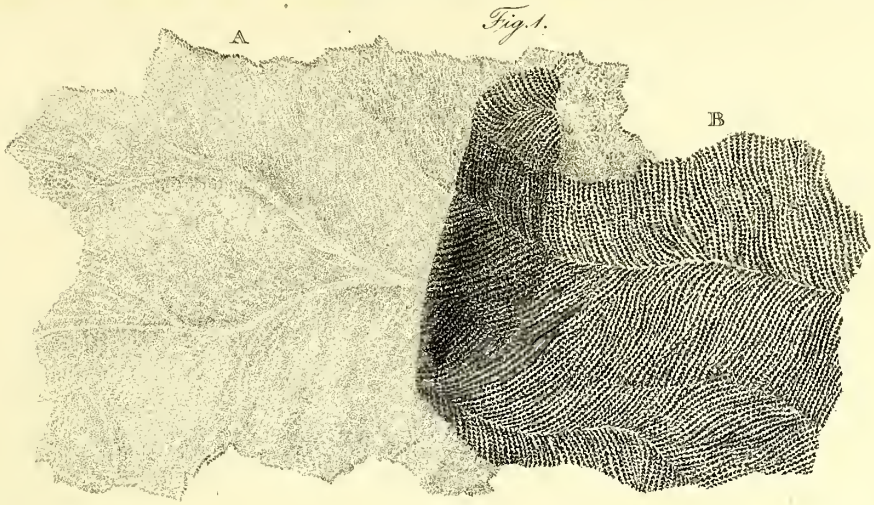
Fig. 3. Some fibres. Magnified four hundred diameters.

Fig. 4. $\frac{1}{100}$ part of a square inch of the choroid. Magnified forty diameters.

Fig. 5. A very small portion. Magnified two hundred diameters.

TAB. XCI.

Fig. 1.



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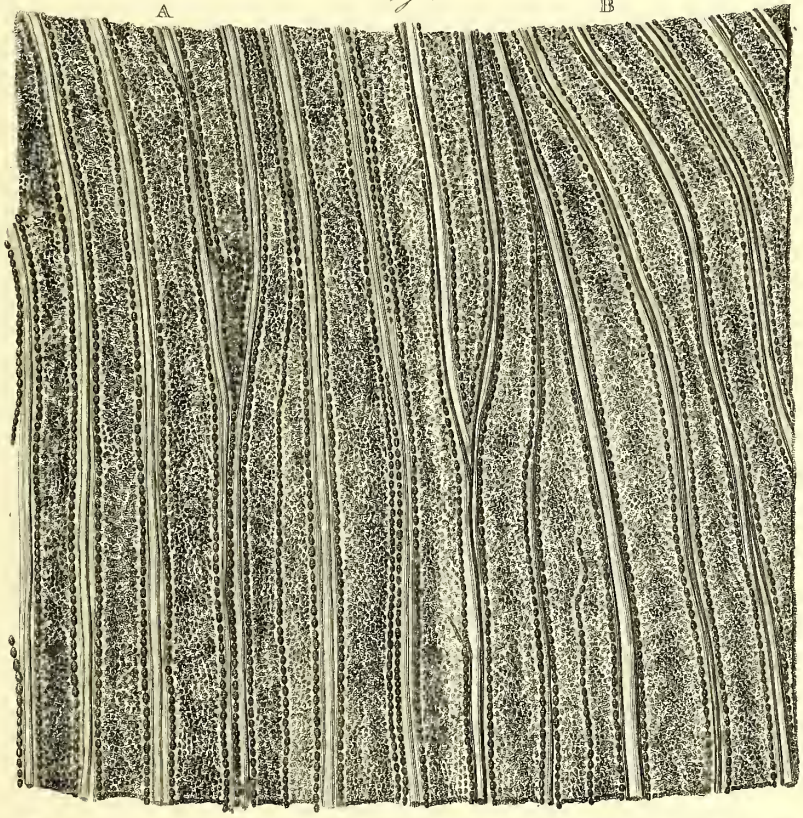

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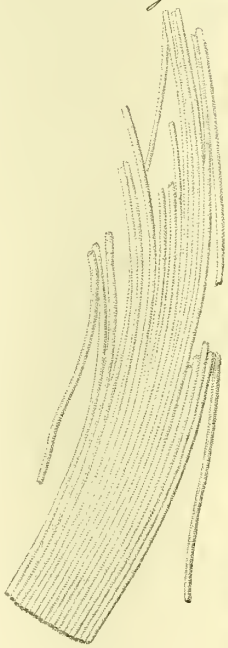
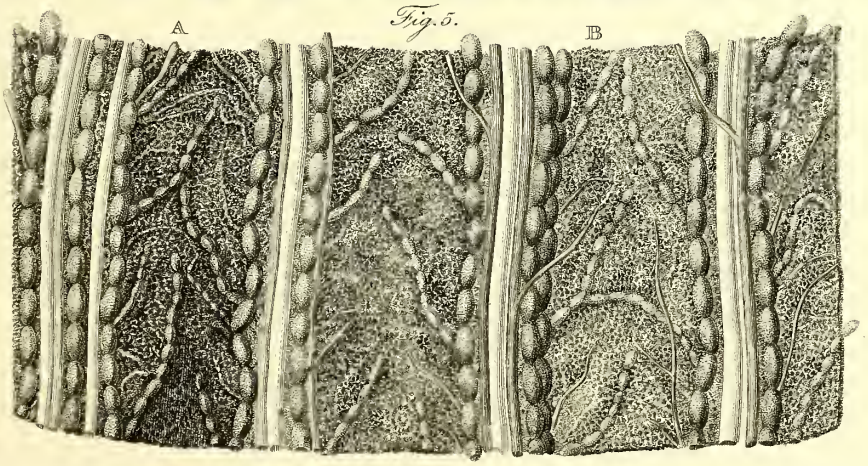


Fig. 3

Fig. 5.



Franz. Bauer del.

Jas. Basire sc

TAB. XCII.

LECTURE EIGHTH.

Figs. 1. and 2. A side and front view of the eagle's head. Of the natural size.

TAB. XCII.

Fig. 1.

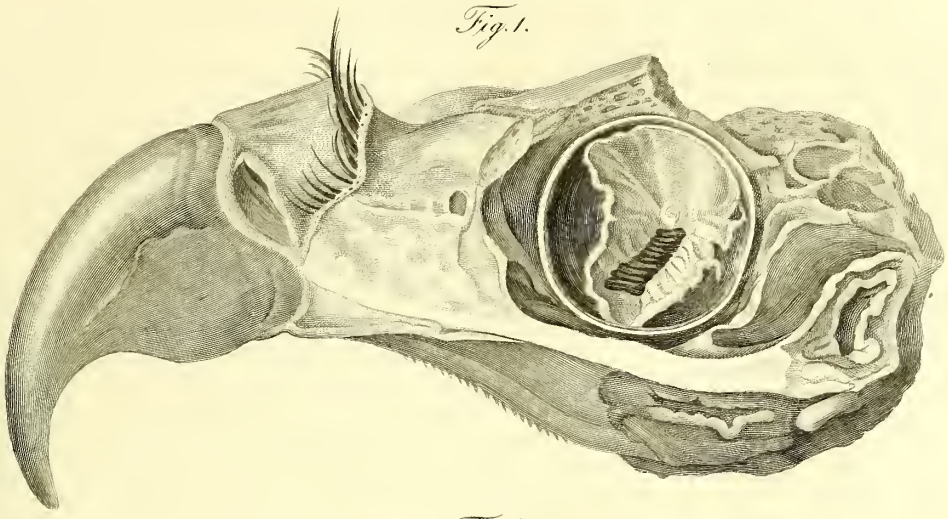


Fig. 2.

Franz. Bauer del.t *Js Basire sc.*

TAB. XCIII.

LECTURE EIGHTH.

Fig. 1. The bony rim in the sclerotic coat of the eye of the goose.

Fig. 2. The same rim in the great horned owl.

Fig. 3. The marsupium in the eye of the turkey.

Fig. 4. The marsupium in the emu from New South Wales.

Figs. 5. and 6. Two views of the marsupium of the eye of the goose, to show that it reaches the lens, which is not the case in the turkey.

TAB. XCIII.

Fig. 1.

Fig. 2.

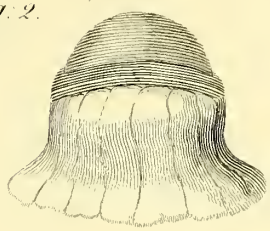


Fig. 3.

Fig. 4.

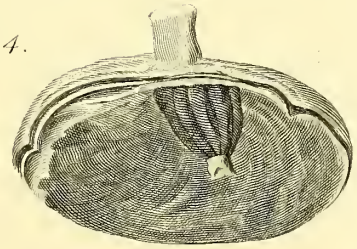


Fig. 5.

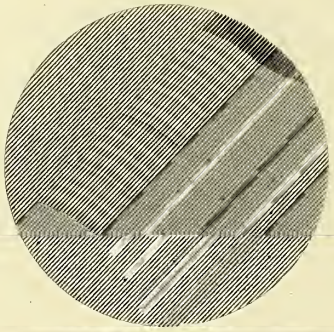
Fig. 6.

TAB. XCIV.

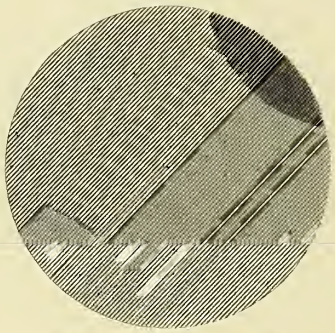
LECTURE EIGHTH.

The appearances that were seen during the progress of the eclipse of the sun, September the seventh, 1820, from twenty-five minutes past twelve at noon, to nine minutes past three in the afternoon.

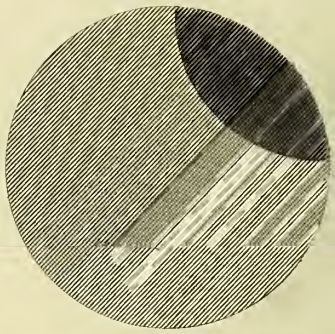
It is intended to illustrate the effect produced on the thermometer during the different degrees of the sun's occultation.



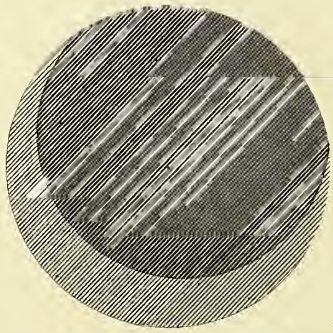
H . M . S
12 . 25 . 0



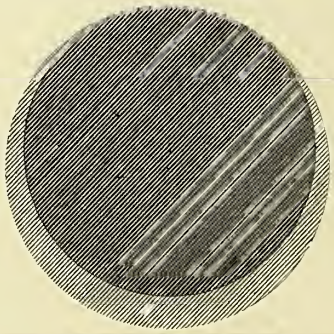
H . M . S
12 . 40 . 0



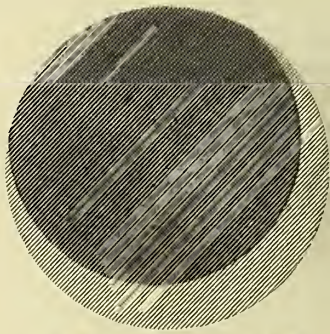
H . M . S
12 . 55 . 0



H . M . S
1 . 47 . 30

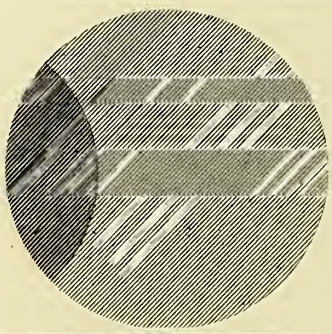


H . M . S
1 . 50 . 30

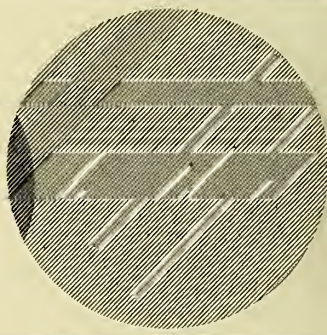


H . M . S
1 . 53 . 30

H . M . S
2 . 30 . 0

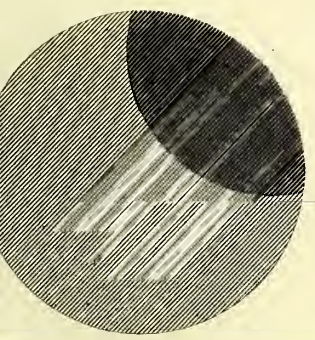


H . M . S
2 . 45 . 0



H . M . S
3 . 0 . 0

Kew Green. Francis Bauer.



H . M . S
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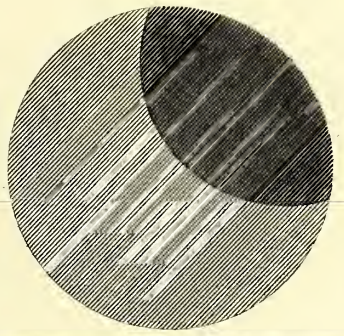

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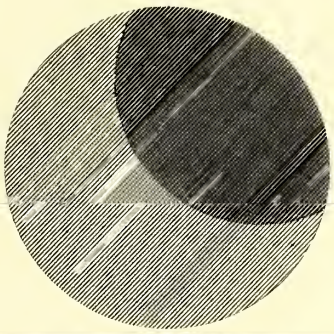

H . M . S
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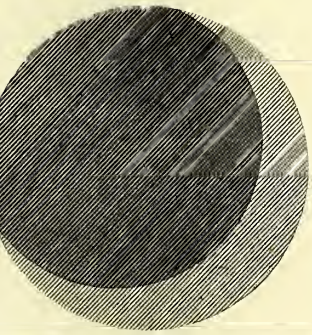
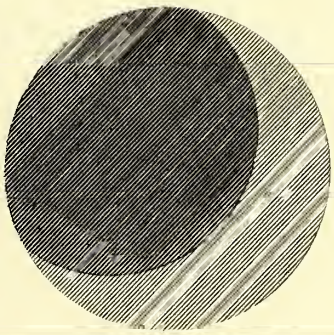


H . M . S
1 . 57 . 10



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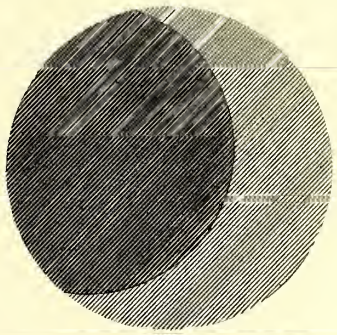
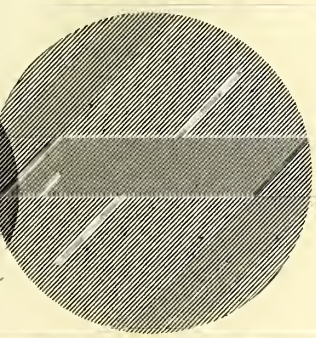
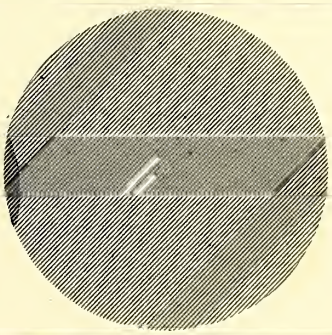


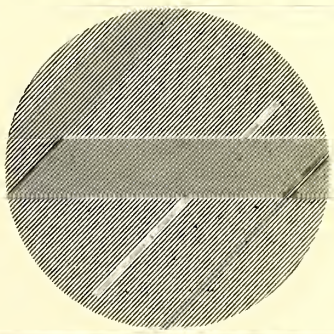
H . M . S
2 . 15 . 0



H . M . S
3 . 5 . 45



H . M . S
3 . 8 . 45



H . M . S
3 . 9 . 0

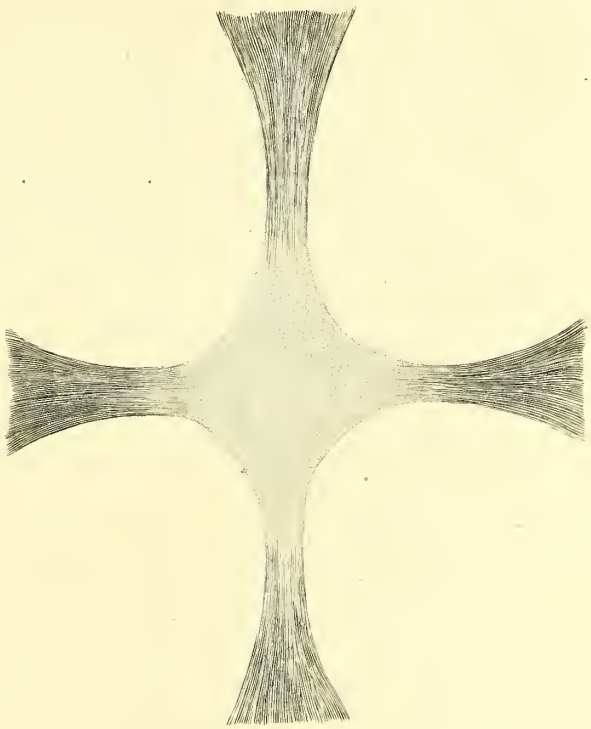
J.t Basire sc.

TAB. XCV.

LECTURE EIGHTH.

Portions of the straight muscles of the human eye, with the expansion of their tendons over the cornea, carefully removed from it by dissection.

TAB. XCV.



TAB. XCVI.

LECTURE EIGHTH.

Fig. 1. The head of the yellow snake of Matinico or Fer Delance, showing the external orifice, with its relative situation to the nostril. Of the natural size.

Fig. 2. The bag in the same snake laid open. At the aperture towards the cornea a double row of small projecting points are seen.

Fig. 3. The cuticle of the rattle-snake after it has been shed, showing the cuticular cornea which is shed with it, and connected with the oval bag in which there is a bristle.

Fig. 1.

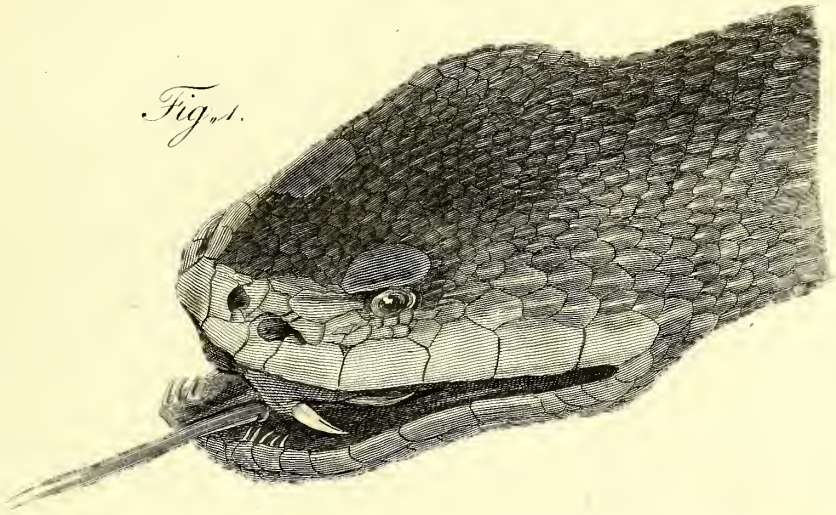


Fig. 2.

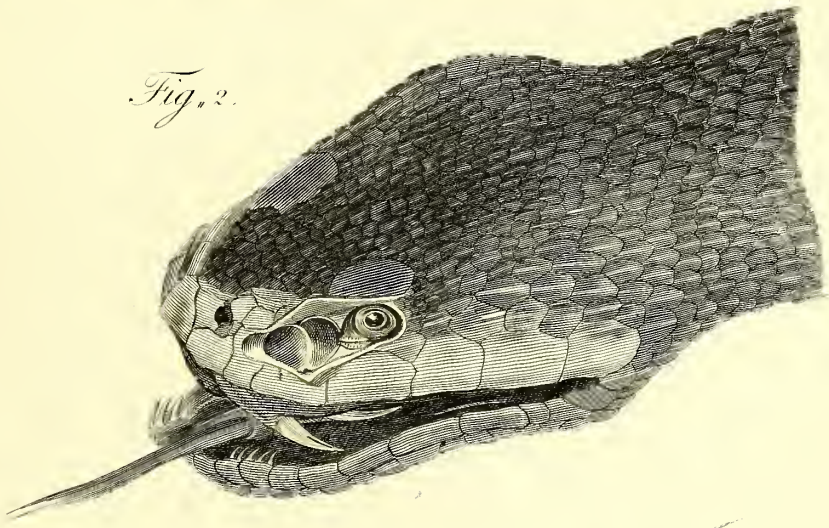
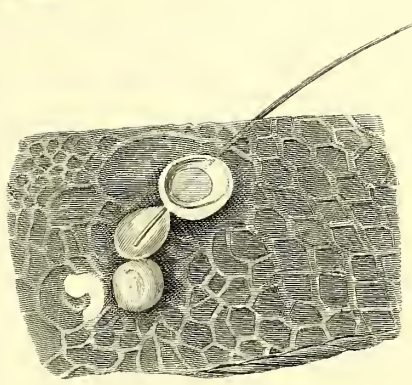


Fig. 3.



TAB. XCVII.

LECTURE NINTH.

Fig. 1. The human membrana tympani ; external view. Of the natural size.

Fig. 2. The same, magnified.

Fig. 3. The same view of this membrane in the elephant. Of the natural size.

TAB. XCVII.

Fig. 1.

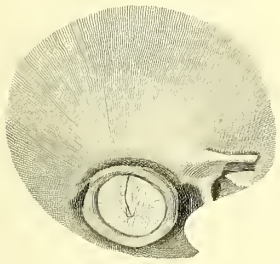


Fig. 2.

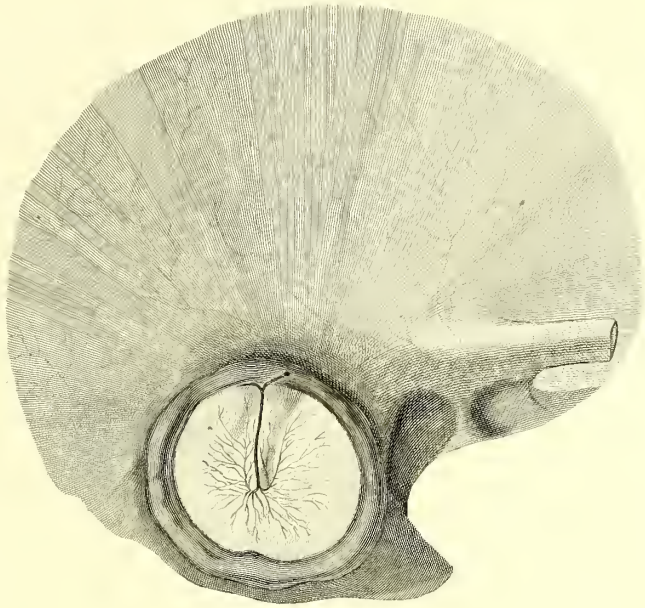
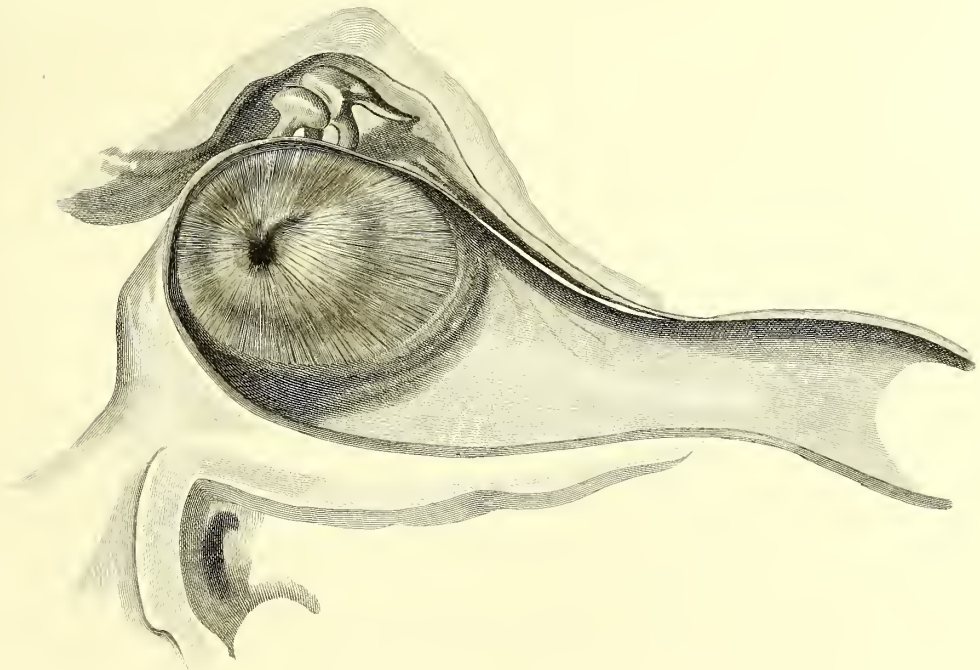


Fig. 3



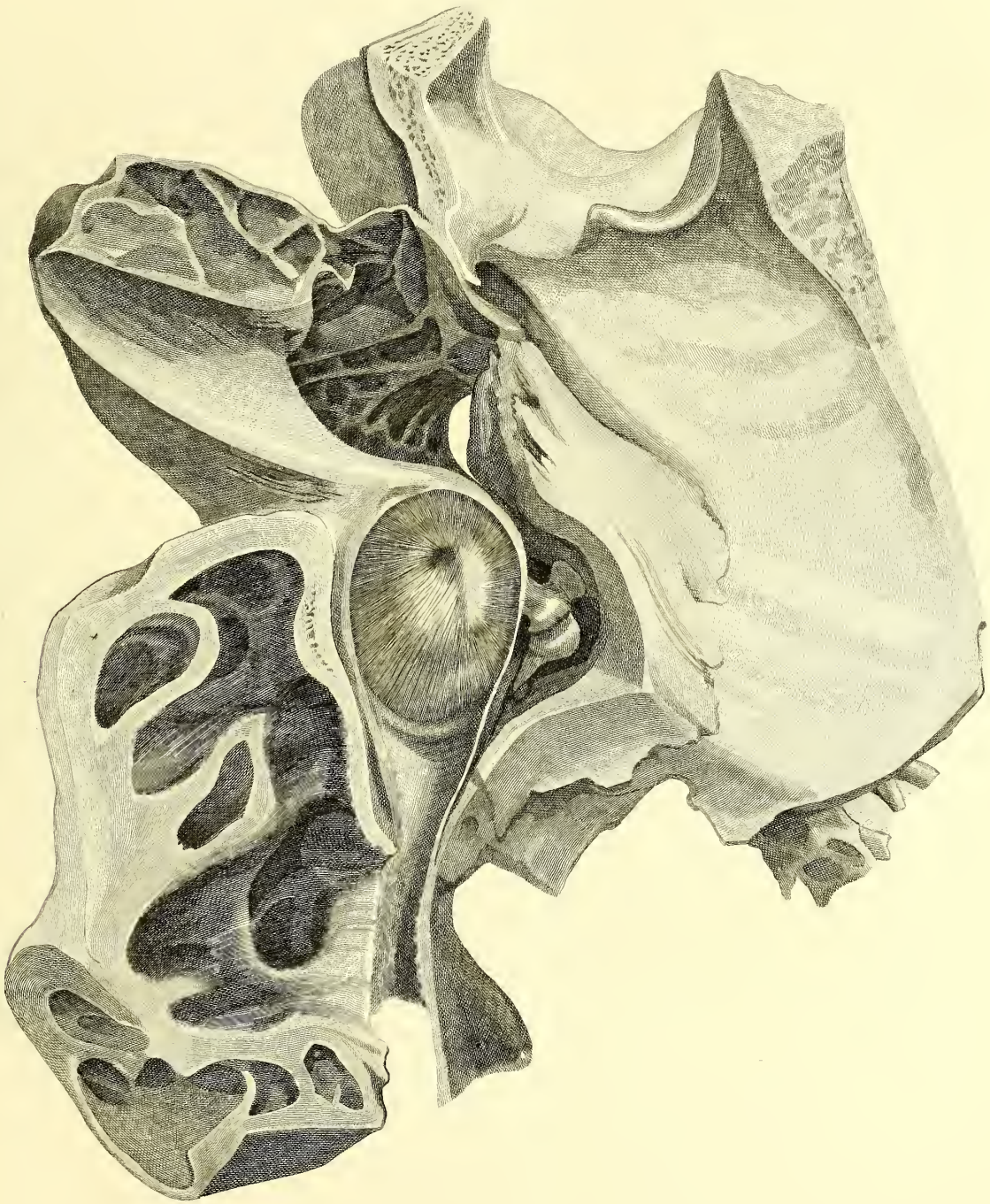
Wm Clift del.t

J.s Basire sc.

TAB. XCVIII.

LECTURE NINTH.

The posterior view of the membrana tympani in the elephant, and a section of the mastoid cells.



Wm Clift delt

Js Basire sc.

TAB. XCIX.

LECTURE NINTH.

Fig. 1. The membrana tympani in the ox. Natural size.

Fig. 2. The same, magnified.

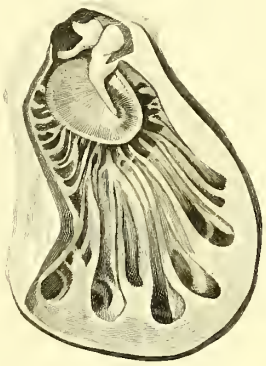
Fig. 3. In the deer. Natural size.

Fig. 4. The same, magnified.

Fig. 5. In the hare. Natural size.

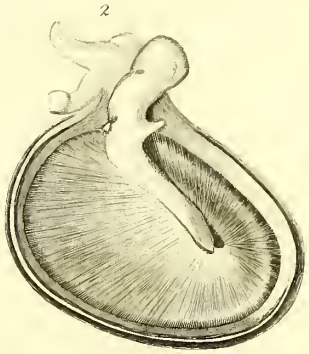
Fig. 6. The same, magnified.

Fig. 1.



COW.

2



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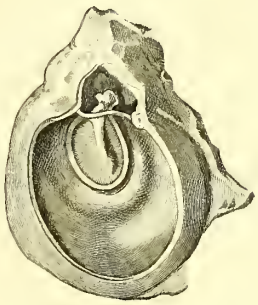
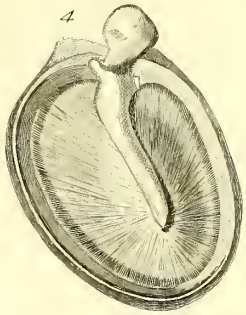


DEER.

4



5

HARE.

6

Wm. Clift del.t

J.s Basire sc.

TAB. C.

LECTURE NINTH.

An external view of the parts in which the organ of hearing of the balæna mysticetus is contained.

a a. The external surface of the large concave bone which forms the cavity of the tympani.

b. The petrous portion of bone, in which the cochlea and semicircular canal are contained.

c. A bony process connecting the petrous portion with the skull.

d d. The meatus auditorius externus.

e. The surface of the membrana tympani, to show its muscular fibres, the external covering having been removed.

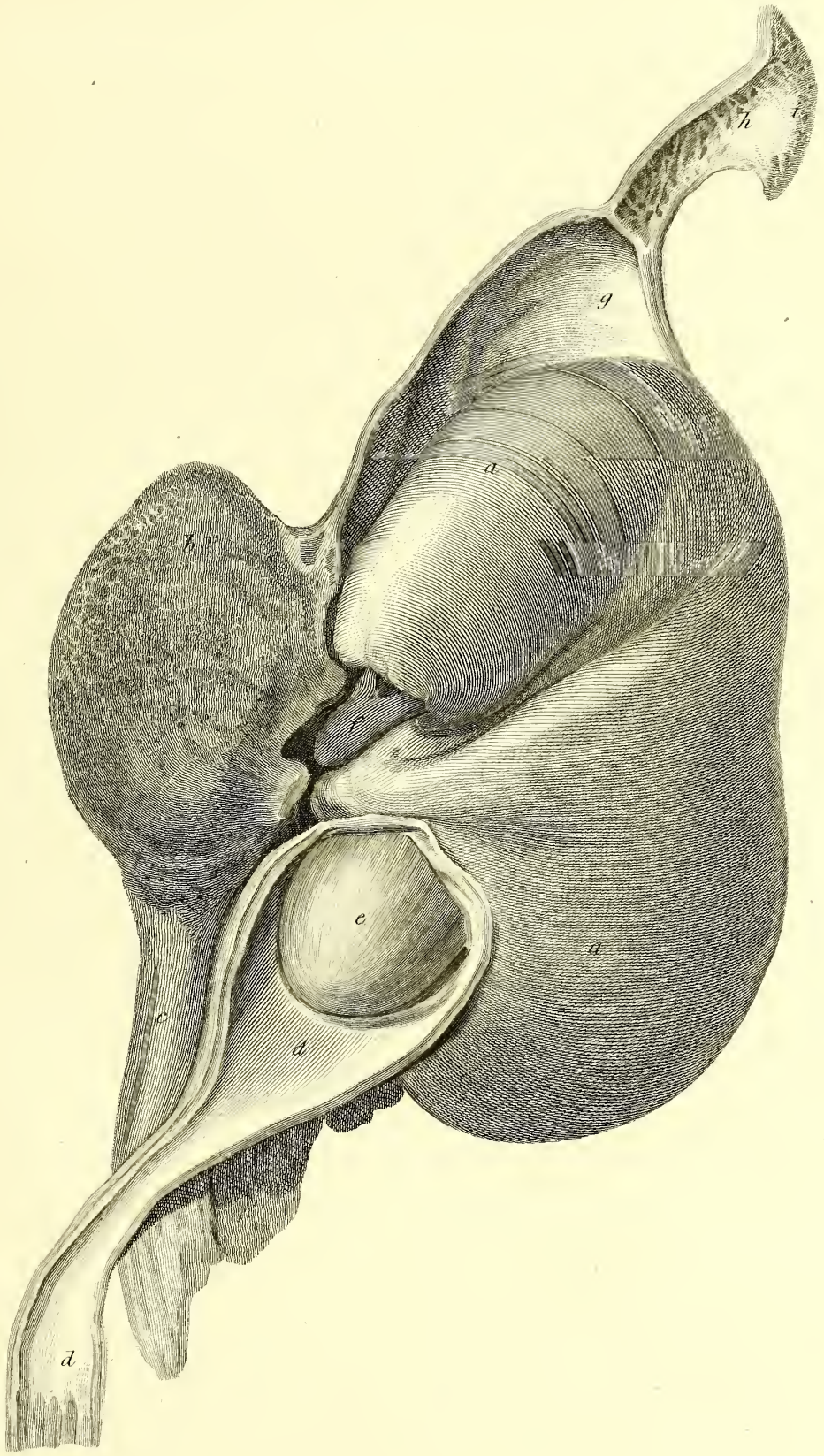
f. A portion of the malleus, one of the small bones of the ear.

g. The anterior portion of the cavity of the tympanum which extends beyond the concave bone, laid open to show the termination of the Eustachian tube.

h. The internal surface of the Eustachian tube.

i. The opening of the Eustachian tube into the nostril.

TAB. C.



W. Clift del.

J. Basire sc.

TAB. CI.

LECTURE NINTH.

An internal view of the same organ.

a a. The internal surface of the concave bone.

b b. The fatty case in which it is enclosed.

c. A convexity covered by a thin ligamentous periosteum, whose fibres are radiated, and connect the membrana tympani, as well as the membranous fold, f, to the bone.

d. The hollow formed on the inside of the membrana tympani.

e. The external surface of the membrana tympani.

f. The membrane stretched across from the concave bone to the malleus.

g. Malleus.

h. Incus.

i. Stapes.

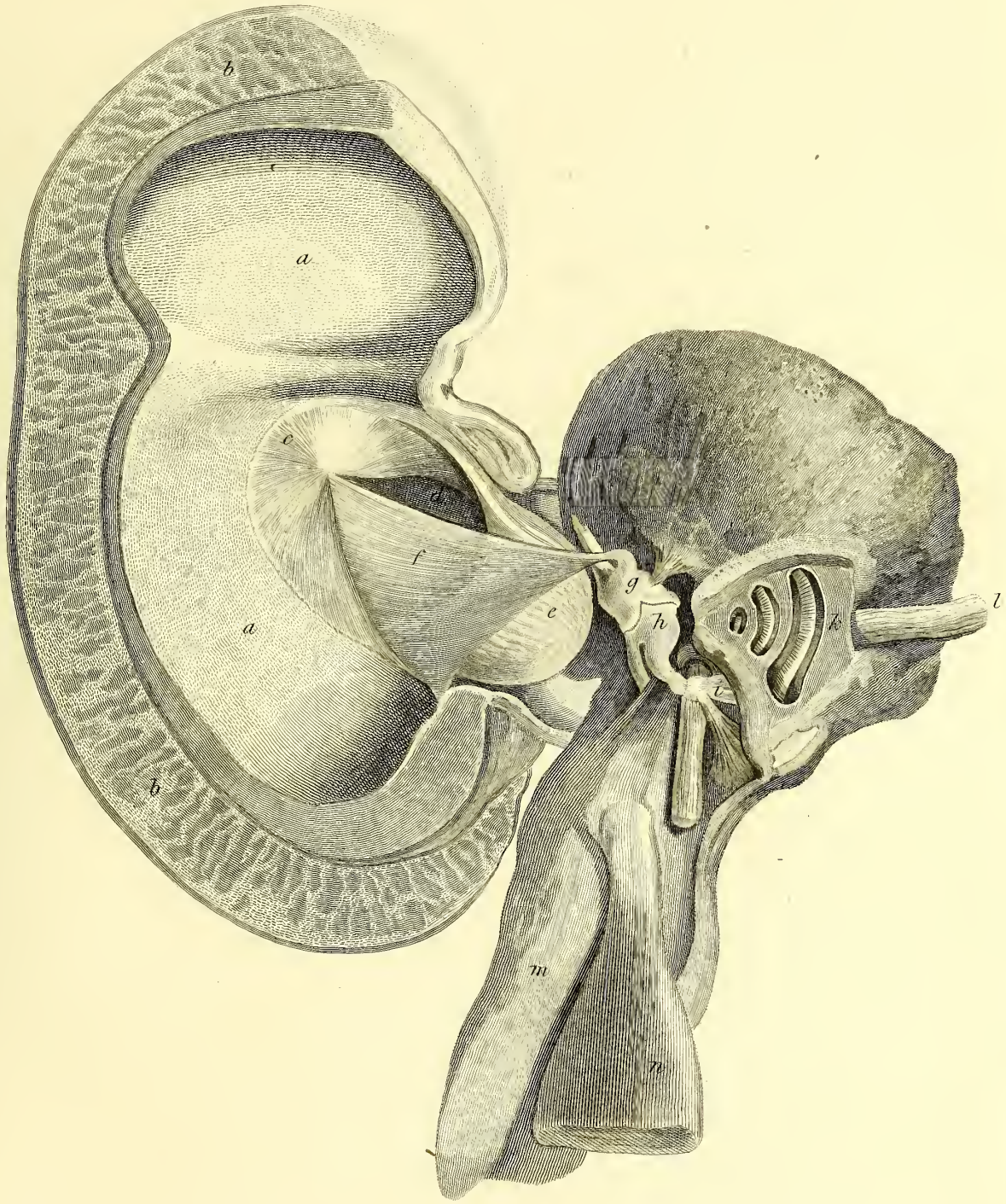
k. Cochlea.

l. Auditory nerve.

m. The bone connecting the petrous portion to the skull.

n. A cartilage which had been cut through in preparing the cranium: the part with which the other extremity was connected has not been ascertained.

TAB. CI.



W. Clift del.

J.s Basire sc.

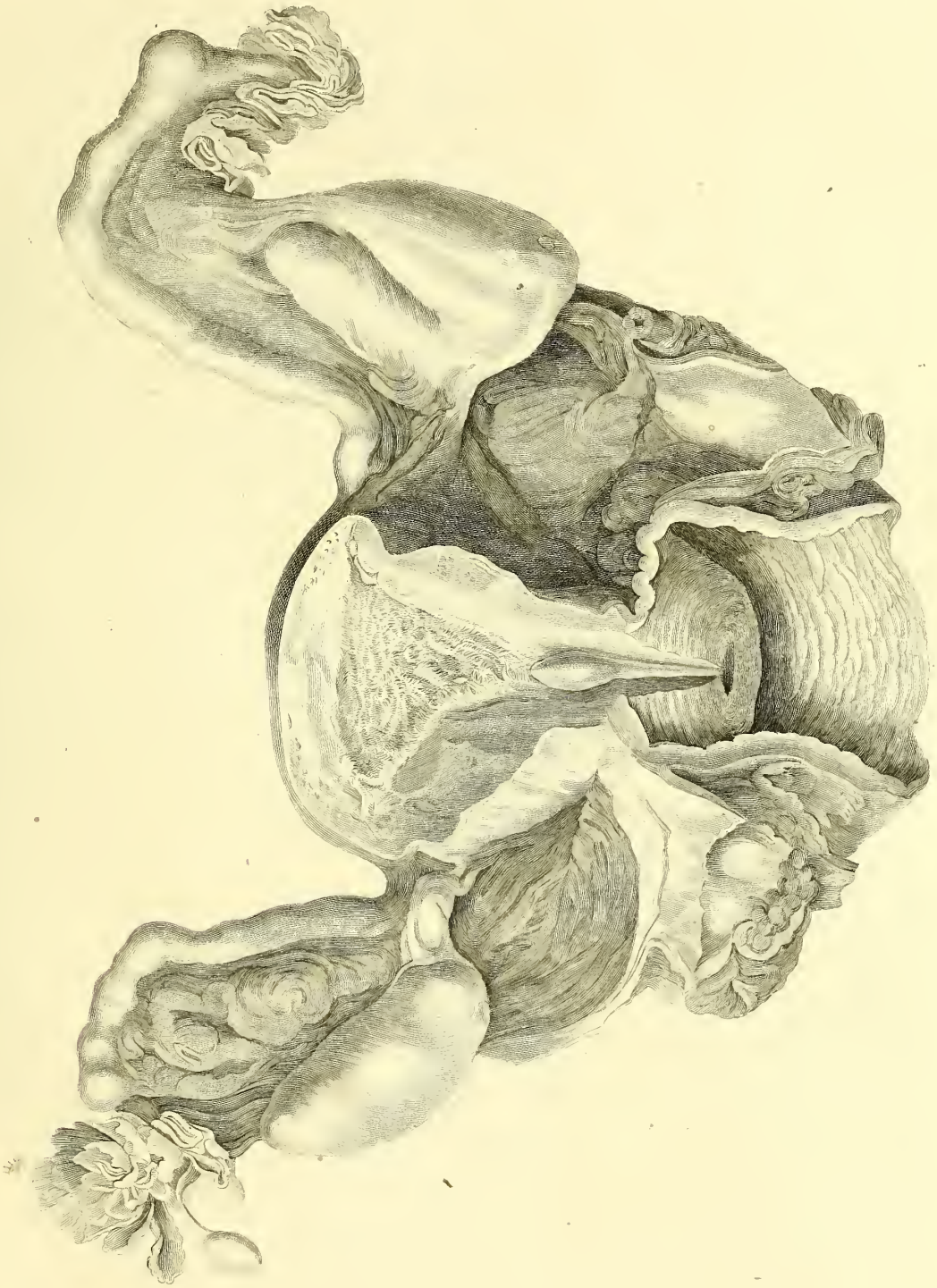
TAB. CII.

LECTURE TENTH.

The uterus laid open from behind, to show the human ovum in the situation in which it was discovered.

The other parts require no verbal description.

TAB. CII.



Franz Bauer del. P. Basire sc.

TAB. CIII.

LECTURE TENTH.

The right ovarium laid open, showing the orifice by which the ovum escaped.

The Fallopian tube is laid open through its whole course.

TAB. CIII.

Franz Bauer del.

P. Basire sc.

TAB. CIV.

LECTURE TENTH.

The left ovarium and Fallopian tube laid open.

TAB. CIV.

Franz Bauer del.

P. Basire sc.

TAB. CV.

LECTURE TENTH.

Fig. 1. The human ovum. Natural size.

Fig. 2. The same magnified, exposing the uniform surface of the chorion.

Fig. 3. The opposite view of the ovum, showing the chorion is disunited through its whole length.

Fig. 4. The chorion turned back on each side, exposing the amnion, through which the rudiments of the brain and medulla spinalis are distinctly seen.

TAB. CV.

Fig. 1.

Fig. 2.

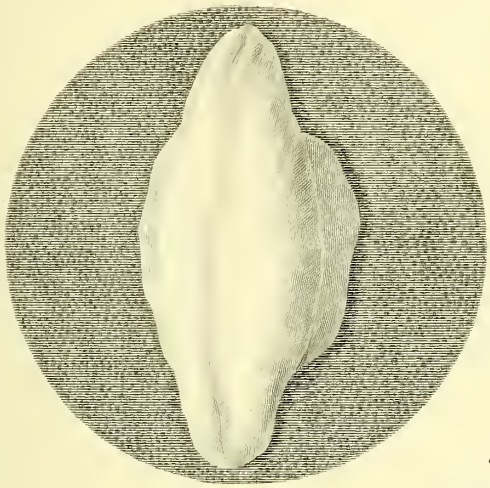


Fig. 3.

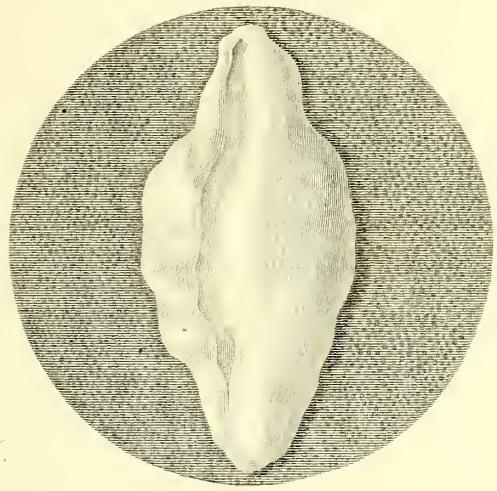
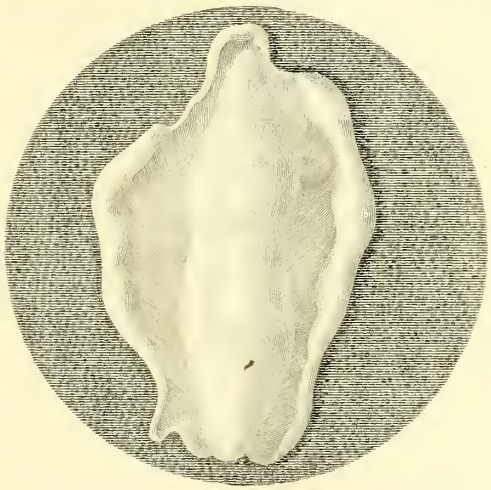


Fig. 4.



Franz Bauer, del.

J.s Basire. sc.

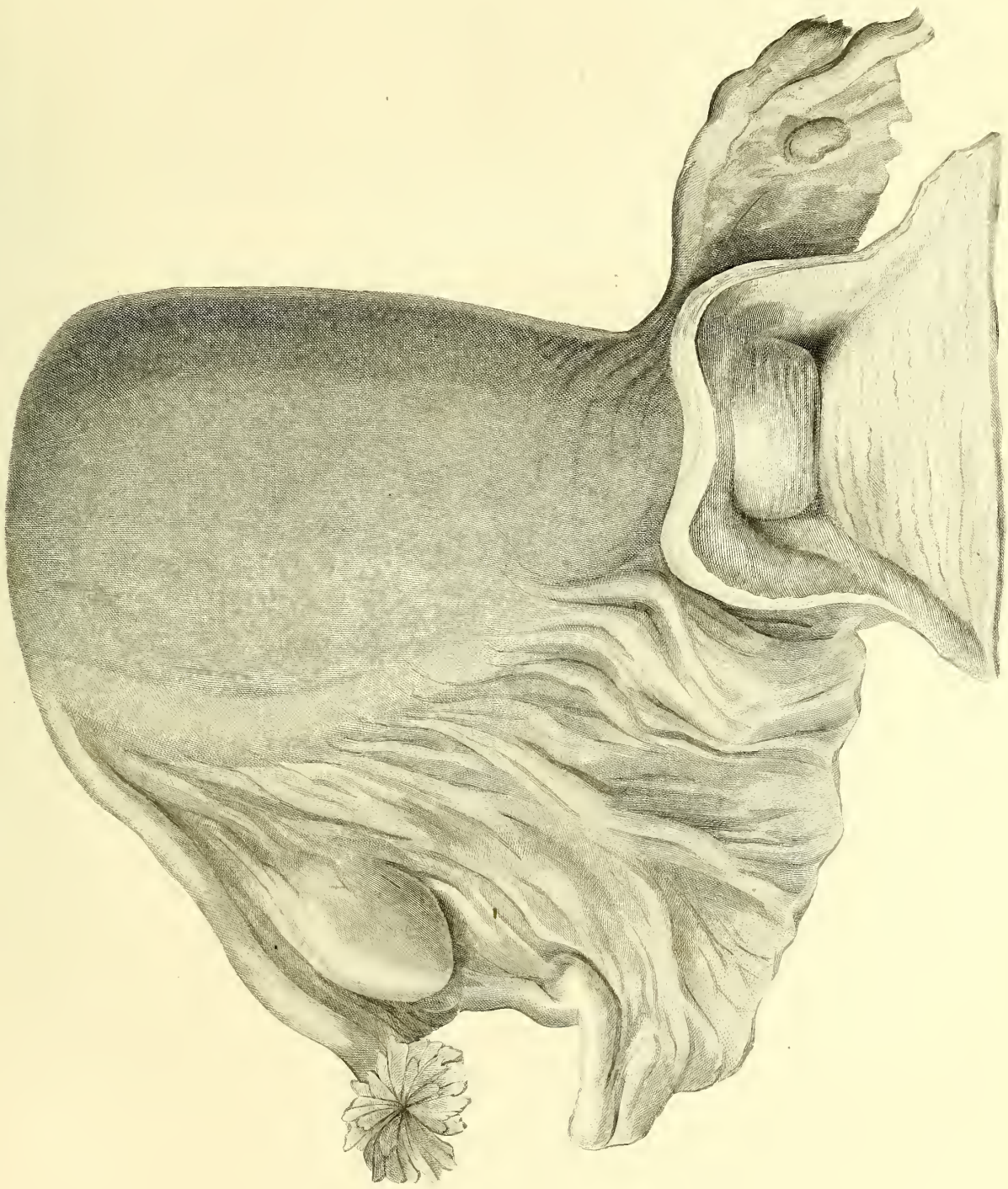
TAB. CVI.

LECTURE TENTH.

The human uterus, one side of which appeared to be wholly wanting, and only an imperfect remain of the ovarium and Fallopian tube of that side.

The case is registered in the Philosophical Transactions, by Dr. Grainville, who favoured me with the use of the plate.

TAB. CVI.



J. Basire, sc

TAB. CVII.

LECTURE TENTH.

An ovarium case.

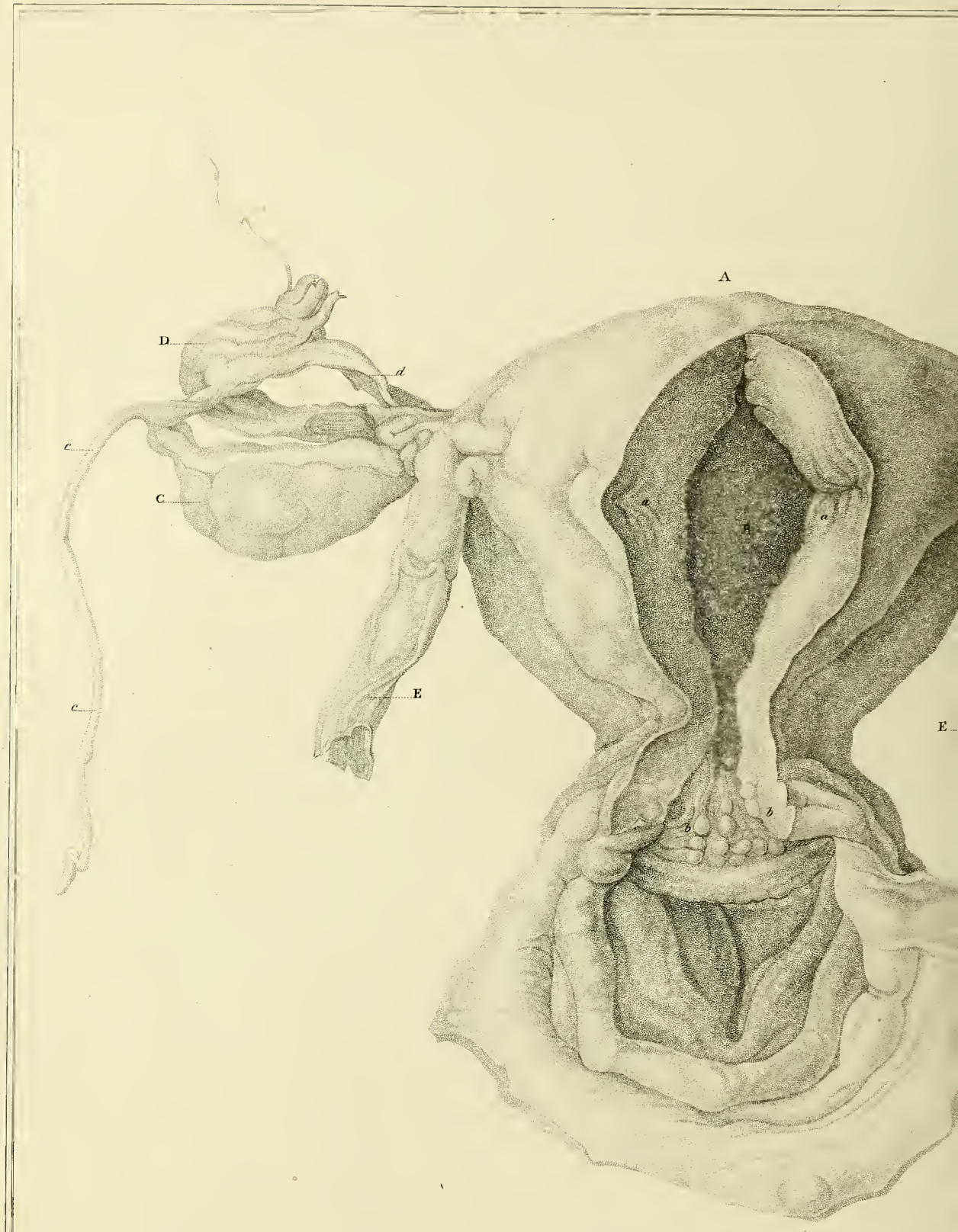
The embryo is contained in the corpus luteum, covered by its amnion and chorion, having its placenta attached to the inner surface of the covering of the ovarium.

The empty uterus is considerably thickened in its coats, and enlarged in its size.

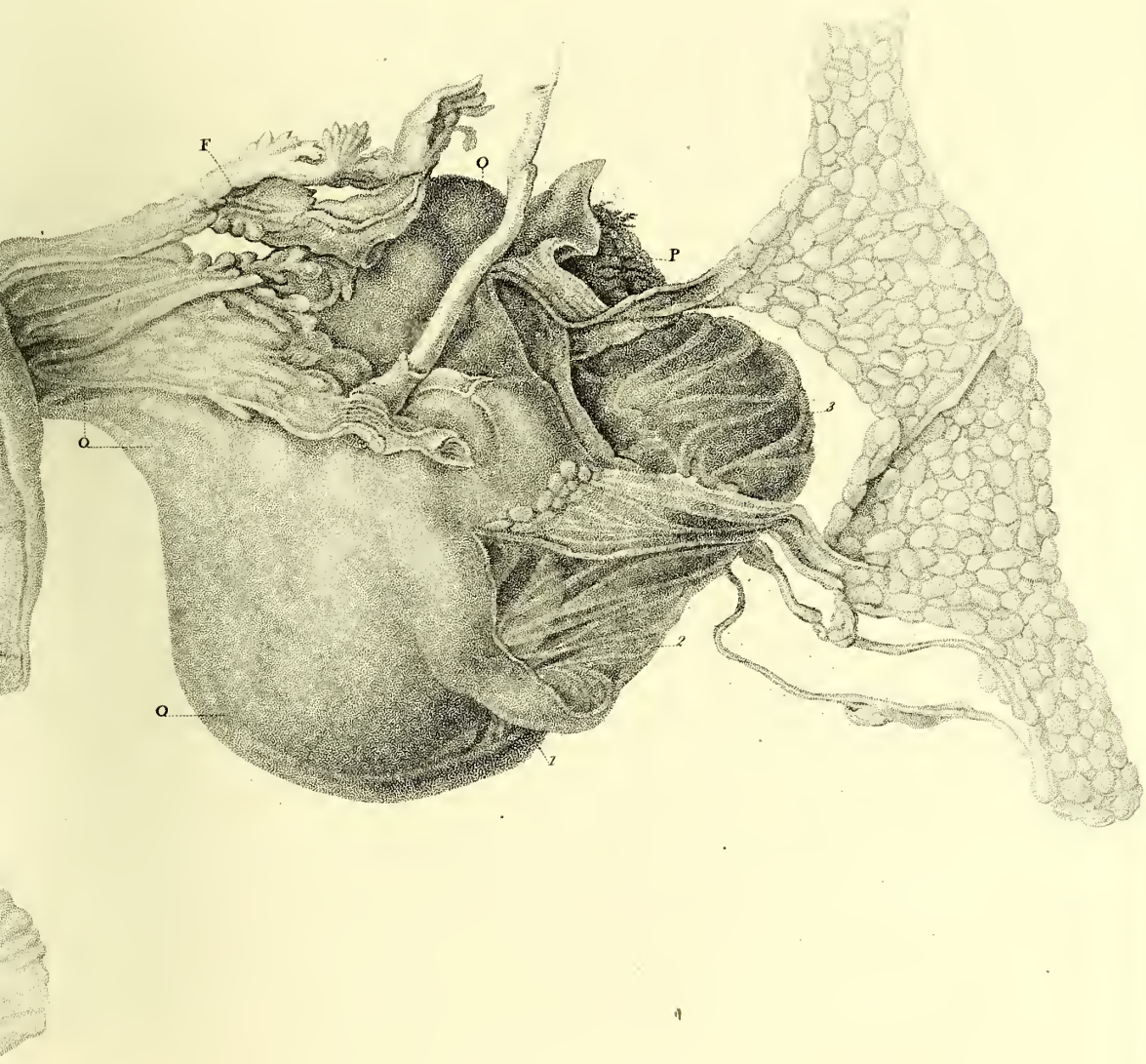
Several small prominent hydatids are attached to the cervix uteri.

For this plate I am also indebted, as well as for the following, to Dr. Grainville.

TAB. CVII.



Franz Bauer del. 1819.



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TAB. CVIII.

LECTURE TENTH.

The embryo exposed, by laying open the ovarial cyst which enveloped it.

A. Amnion.
B. Chorion.
C C C. Placenta.
D D. Portions of the ruptured corpus luteum.
E E E. Ovarium.
F. Fallopian tube.
G. Omentum.

TAB. CIX.

LECTURE TENTH.

Figs. 1. and 2. External and internal view of the human ovarium that did not contain the ovum from which the child was produced, taken immediately after the child was born. It contained a corpus luteum nearly of the full size. Natural size.

Figs. 3. and 4. The external and internal view of the ovarium in which the impregnated ovum had been formed; showing how much the corpus luteum had been broken down, and a new corpus luteum forming.

Figs. 5. and 6. The external and internal view of the ovarium of a woman who died at seventy years of age, to show how little of the appearance of corpora lutea remains. There is a large hydatid.

TAB. CIX.

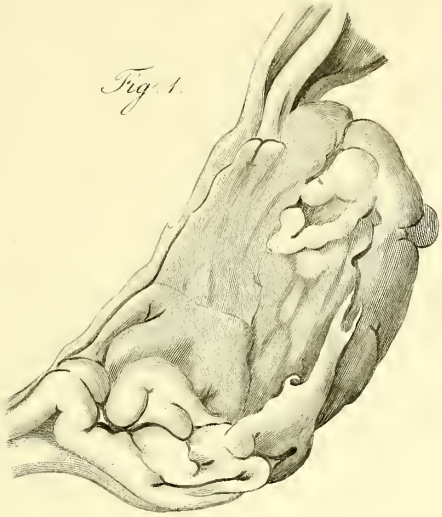
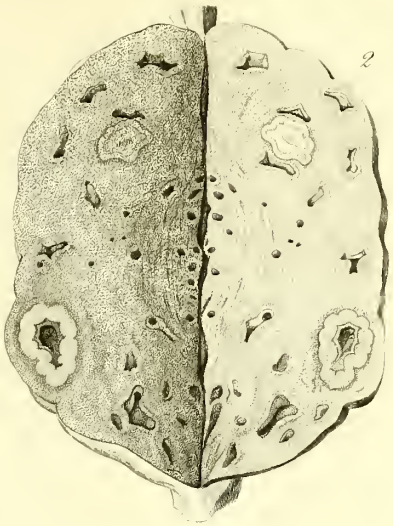


Fig. 1.



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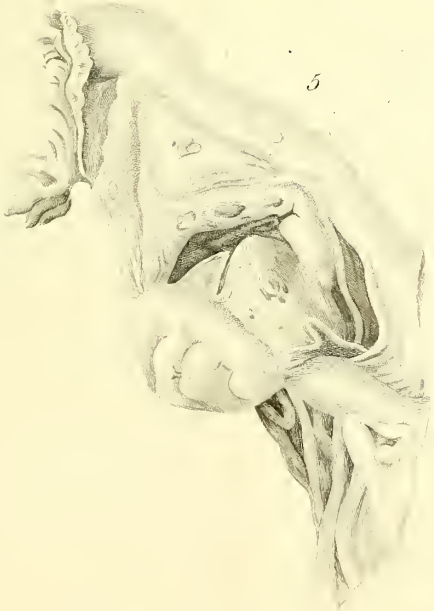

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F. Basire sc.

TAB. CX.

LECTURE TENTH.

Figs. 1. and 2. Human ovaria five days after impregnation.

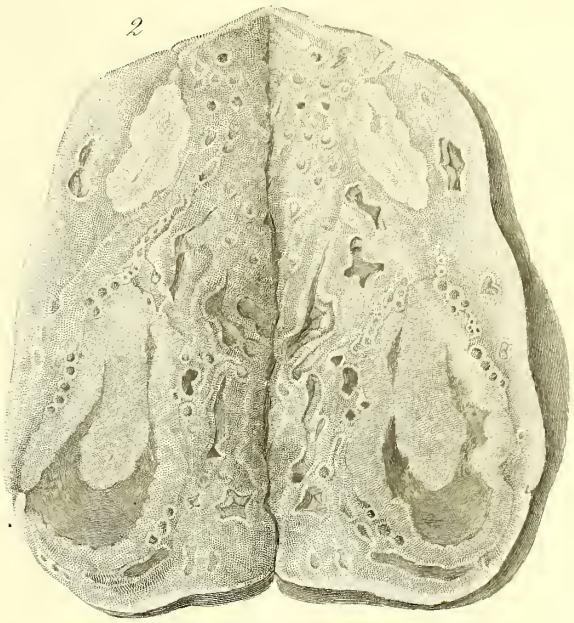
Figs. 3. and 4. Six weeks.

Fig. 5. Transverse section. All the sections magnified two diameters.

TAB. CX.

Fig. 1.

2



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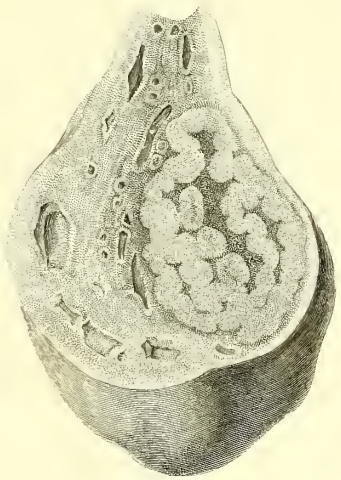

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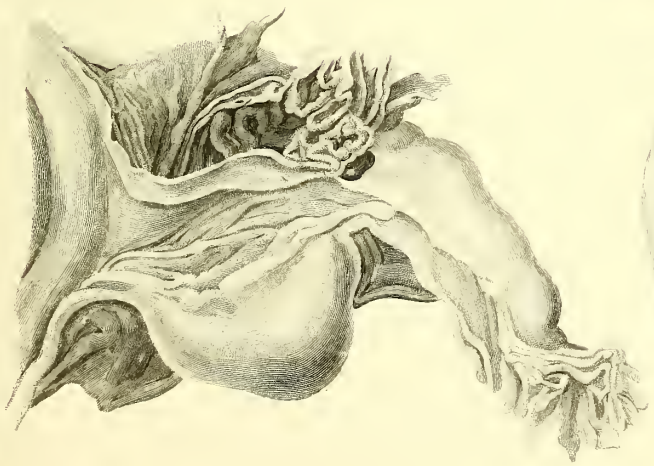

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TAB. CXI.

LECTURE TENTH.

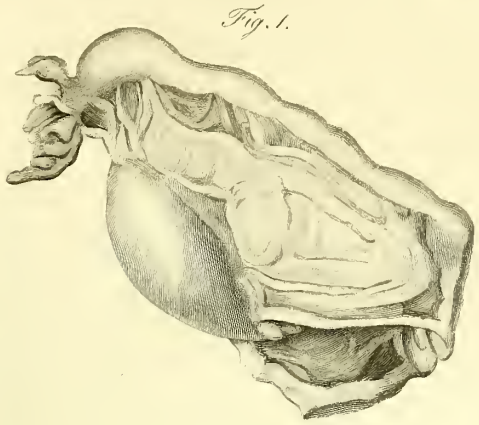
Figs. 1. and 2. Human ovaria. An ovarium in which no ovum was contained.

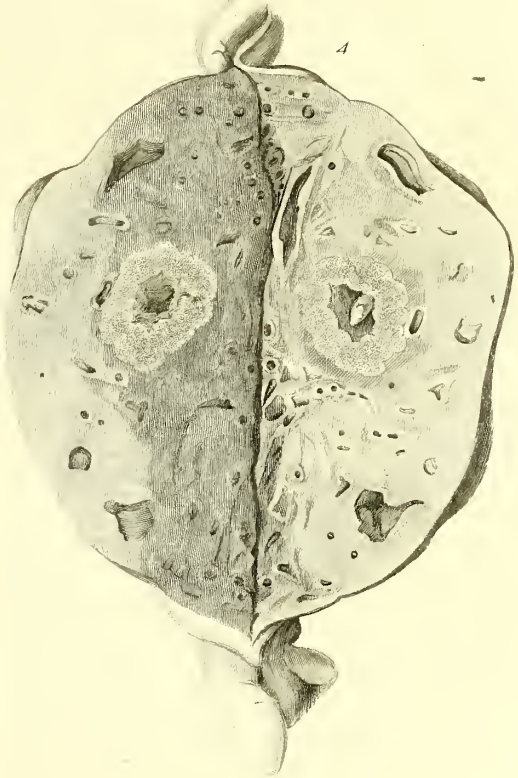
Figs. 3. and 4. An ovarium from which the ovum escaped.

Fig. 5. The ovum magnified.

Figs. 6. and 7. An ovarium at seventy years: the woman had had twelve children. The sections magnified two diameters.

TAB. CXI.





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P.ᵉ Basire, sc.

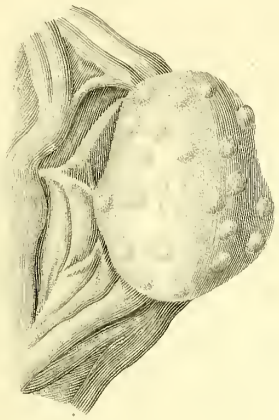
TAB. CXII.

LECTURE TENTH.

Figs. 1. and 2. Ovaria of a cow. At two months old.

Figs. 3. and 4. Fourteen days after impregnation. Sections magnified two diameters.

Fig. 1.



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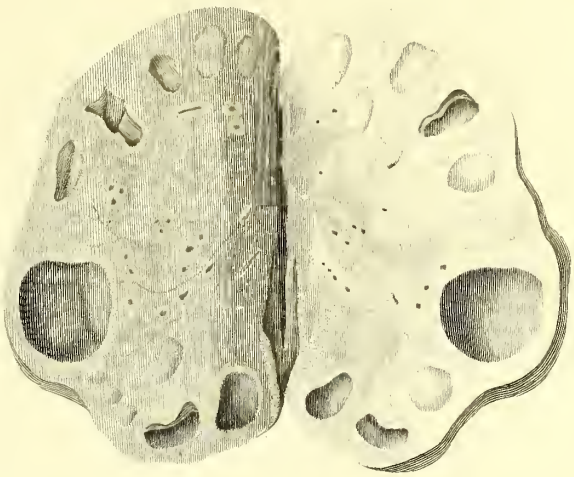

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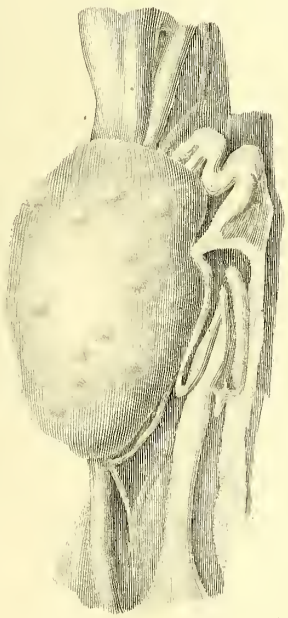

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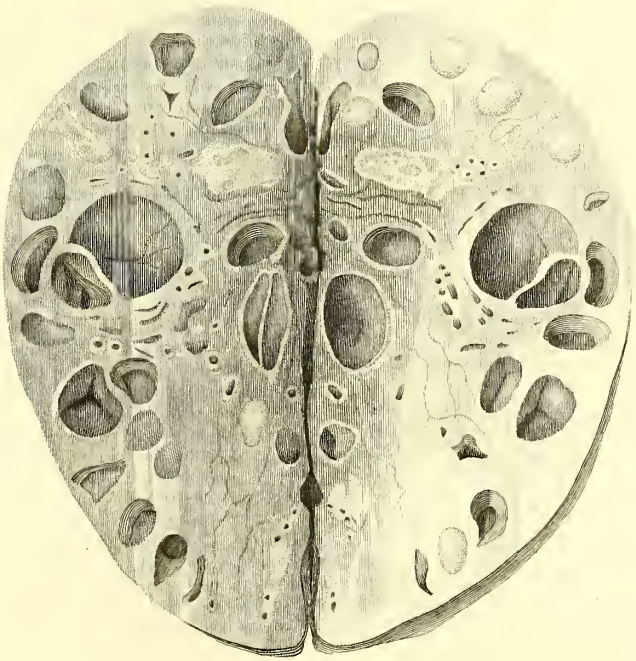


TAB. CXIII.

LECTURE TENTH.

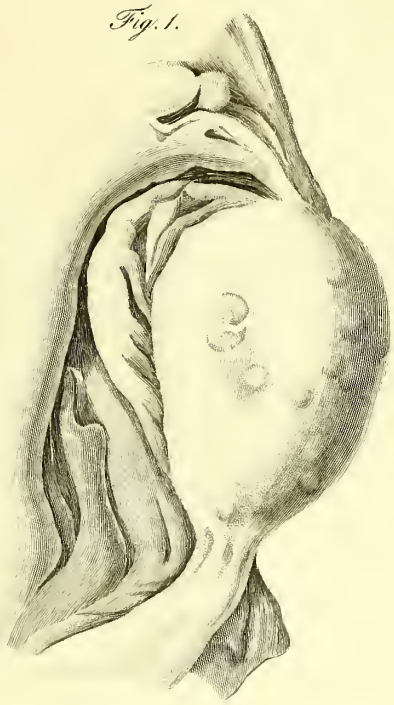
Ovaria of a cow.

Fig. 1. External view of an impregnated ovarium.

Fig. 2. Internal view.

Fig. 3. Section of corpus luteum. The sections magnified two diameters.

Fig. 1.



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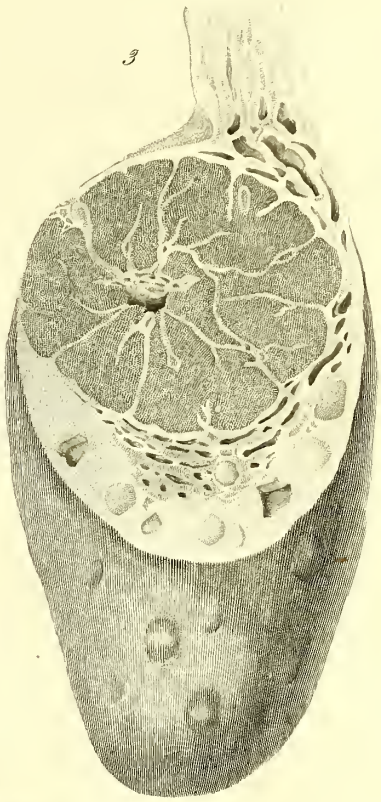

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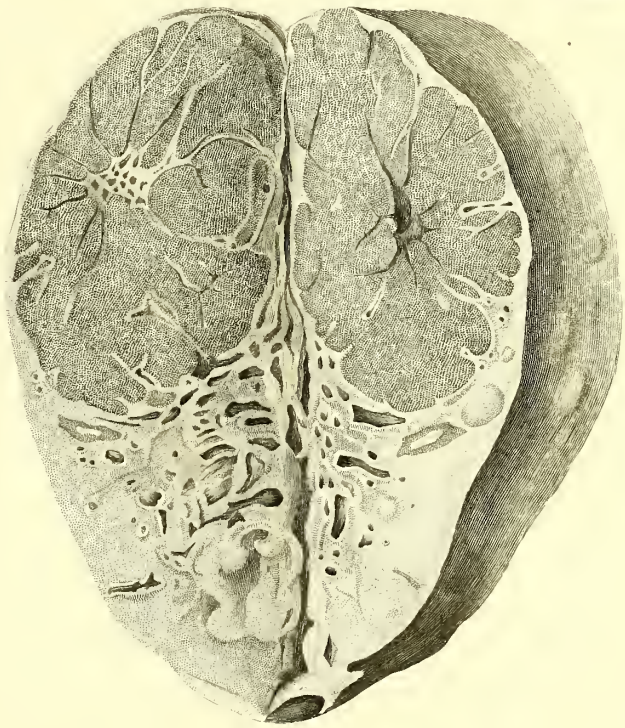


TAB. CXIV.

LECTURE TENTH.

Ovaria of a sow.

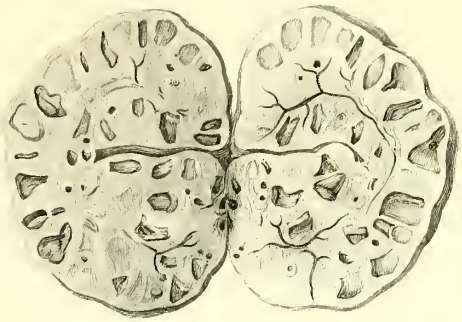
Figs. 1. and 2. Ovarium of a sow four months old.

Figs. 3. and 4. Ovarium before six months.

Figs. 5. and 6. Ovarium six months; complete. The sections magnified two diameters.

Fig 1.

2



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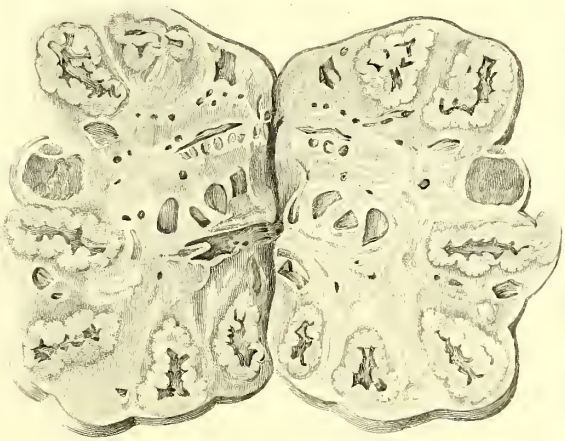

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TAB. CXV.

LECTURE TENTH.

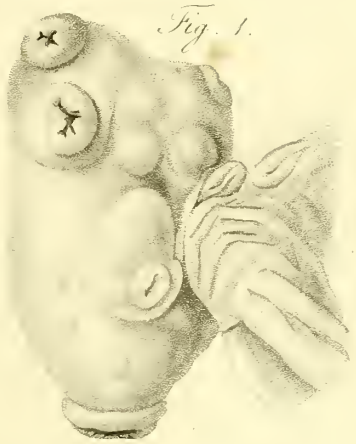
Ovaria of a sow.

Figs. 1. and 2. The ovarium in a virgin state, at six months; five, corporea lutea burst and inverted. No ova detected. Both views magnified two diameters.

Figs. 3. and 4. Ovarium fourteen days after impregnation. The section magnified two diameters.

Figs. 5. and 6. Ovarium five years old, after six litters of pigs.
Section magnified two diameters.

Fig. 1.



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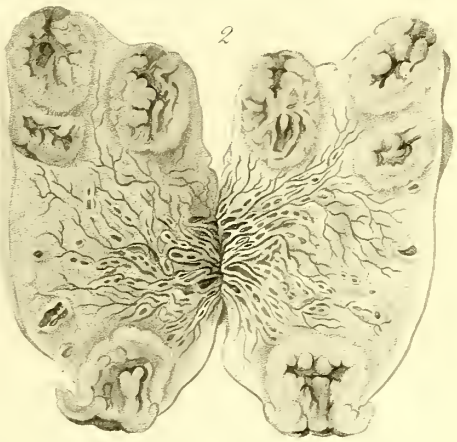

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Natural Size.

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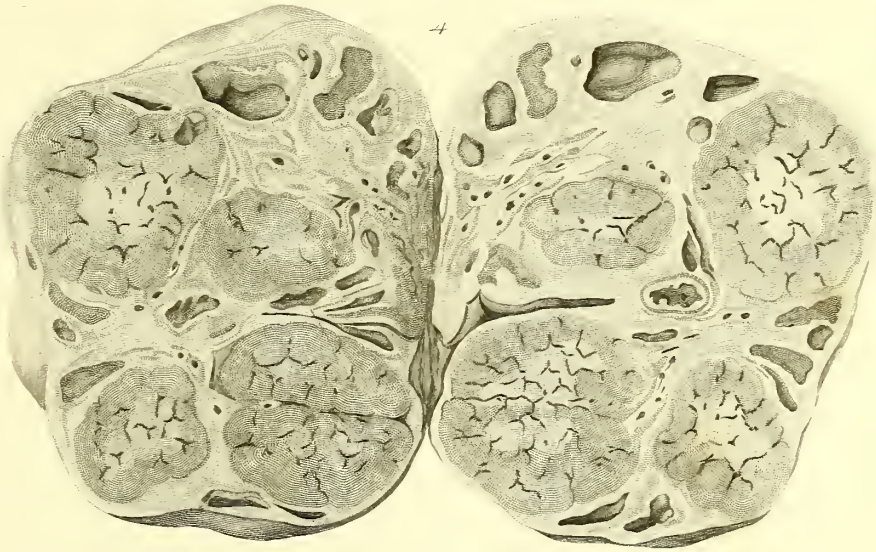

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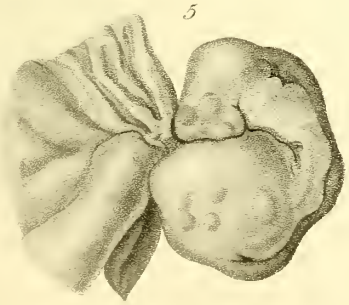

Natural Size.

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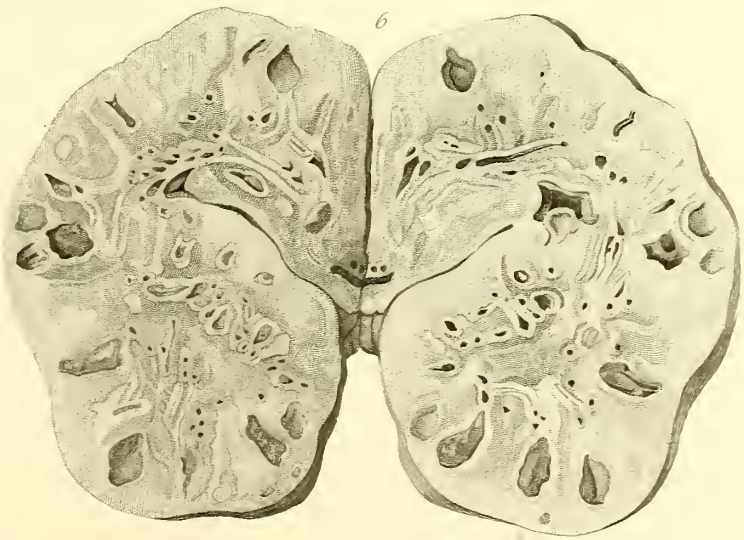

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TAB. CXVI.

LECTURE TENTH.

Uterus and penis of dugong.

TAB. CXVI.

Fig. 1.

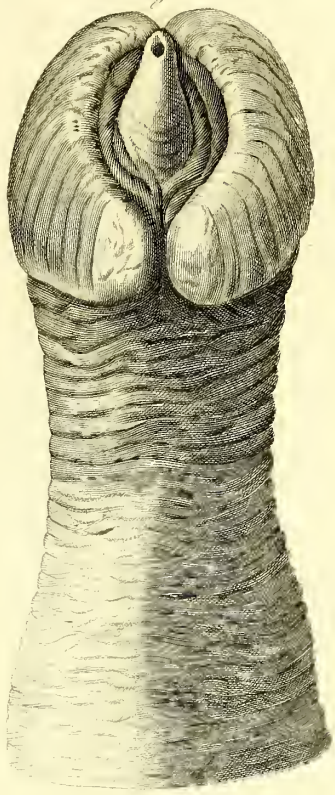
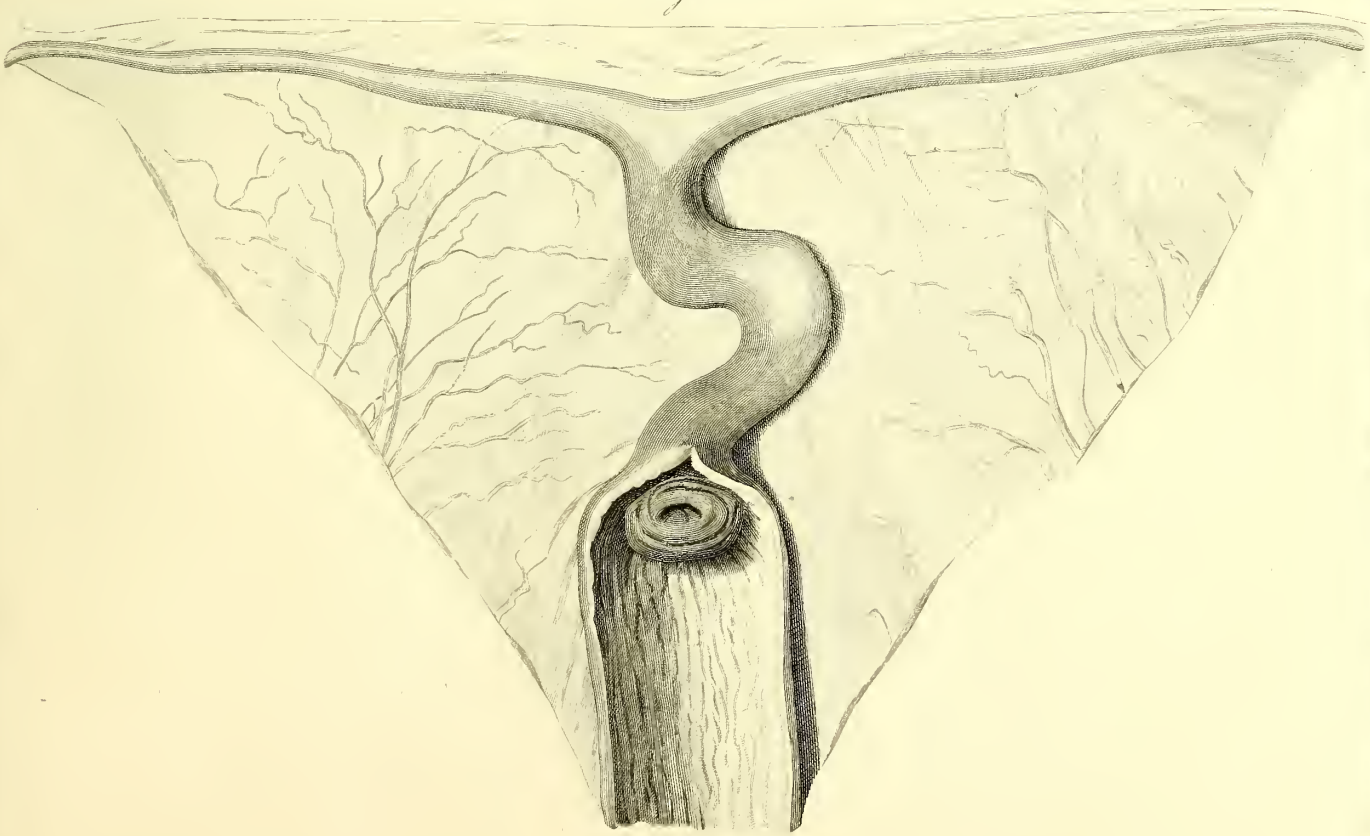


Fig. 2.



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TAB. CXVII.

LECTURE TENTH.

Penis of sea-otter.

TAB. CXVII.

TAB. CXVIII.

LECTURE ELEVENTH.

Fig. 1. The anterior view of the organs of generation of an hermaphrodite dog.

a. The clitoris.

b. The meatus urinarius.

c. The bladder.

d d. The testicles and convolutions of the spermatic artery.

e e. The impervious vasa deferentia.

Fig. 2. The posterior view.

a a. The testicles.

b b. The impervious vasa deferentia.

c. The bladder.

d. The union of the vasa deferentia forming a substance, which may be considered as an impervious agina.

e. The termination of the vasa deferentia at the neck of the bladder.

TAB. CXVIII.

TAB. CXIX.

LECTURE ELEVENTH.

A child with two heads.

TAB. CXX.

LECTURE ELEVENTH.

The head and skull.

TAB. CXX.

Fig. I.

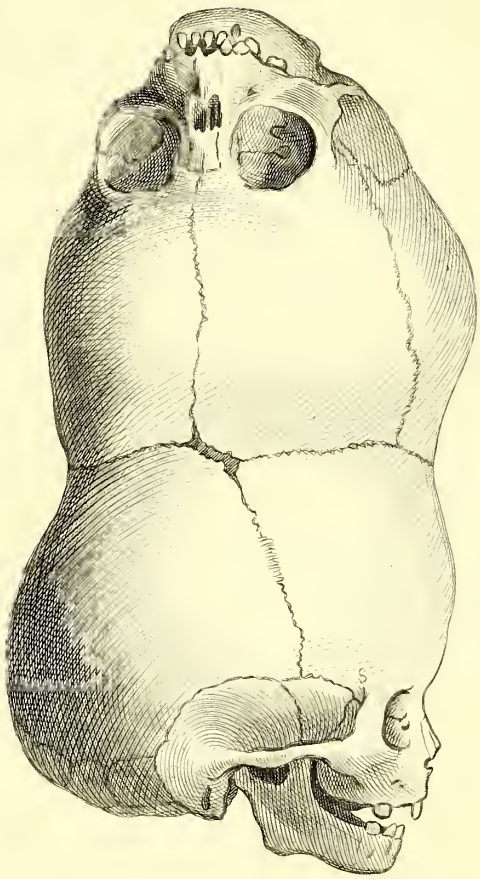

Fig. II.

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TAB. CXXI.

LECTURE ELEVENTH.

View of the head while alive.

TAB. CXXI.

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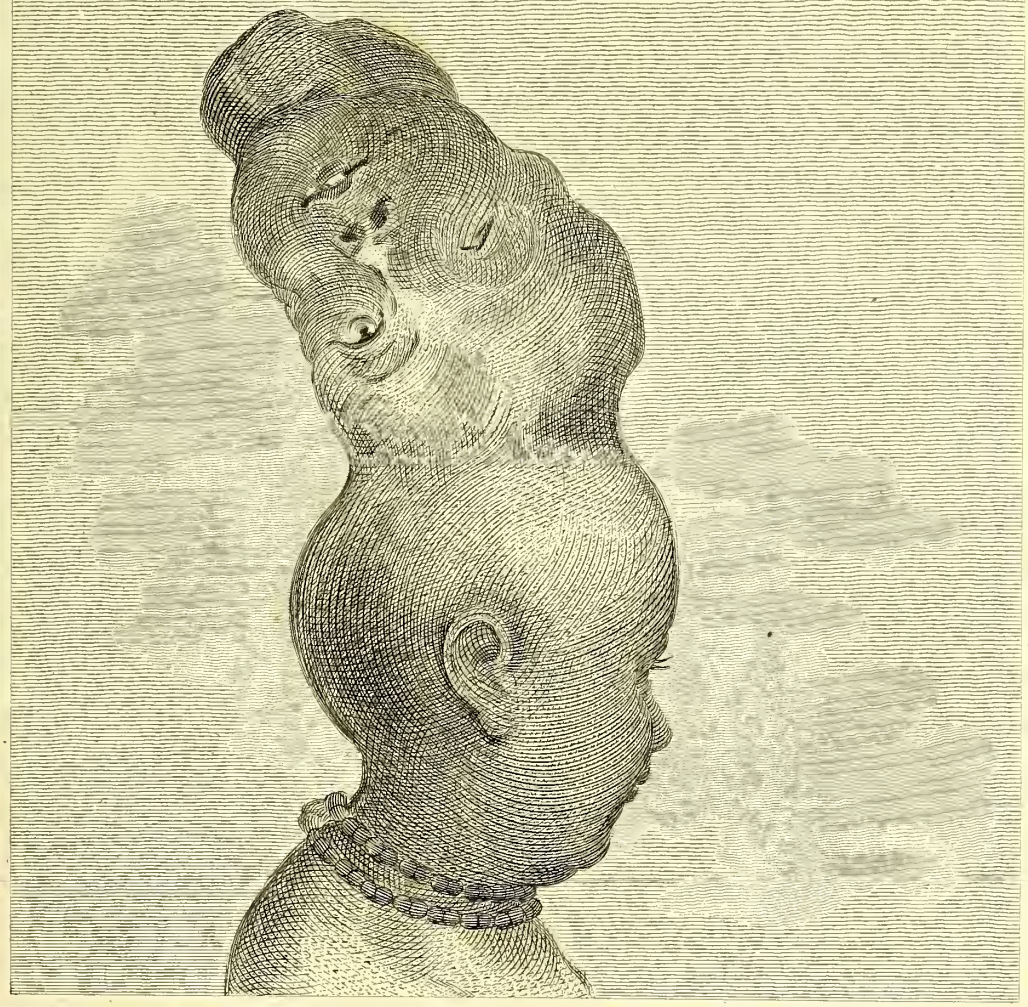
TAB. CXXII.

LECTURE ELEVENTH.

Another view of it.

TAB. CXXII.



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TAB. CXXIII.

LECTURE TWELFTH.

Fig. 1. A posterior view of the uterus of the kanguroo. Natural size.

a. Clitoris.

b b. Ducts of Cooper's gland.

c c. Internal surface of vagina.

d. Meatus urinarius.

e e. Canals leading from vagina to uterus.

f f. Two constrictions in these canals.

g g. The canals terminating in uterus.

h h. The body of uterus.

i i. Two oval swellings in the Fallopian tubes.

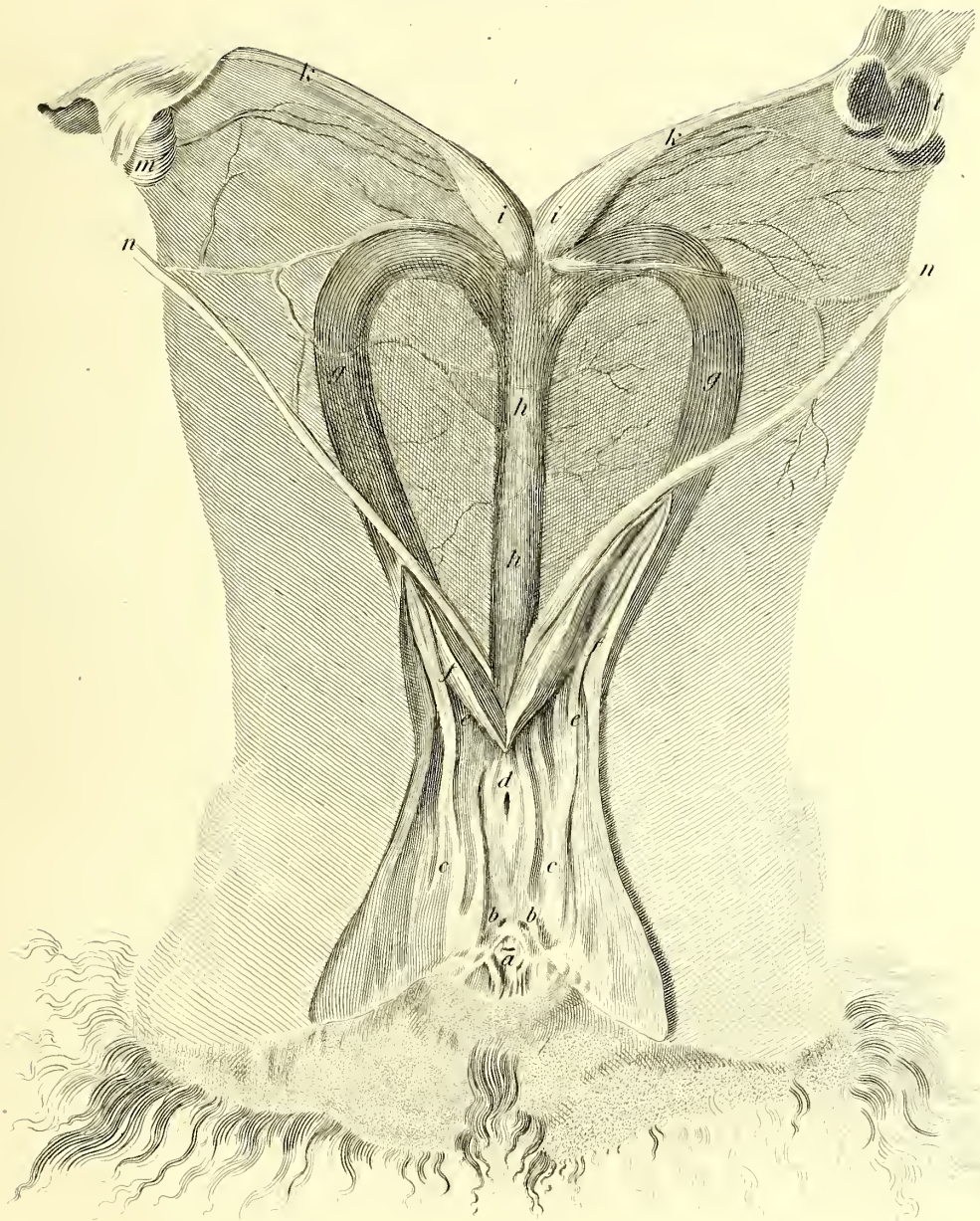
k k. Course of Fallopian tubes.

l. Ovarium slit open.

m. Opposite ovarium, the fimbræ spread over it.

n n. The ureters.

TAB. CXXIII.

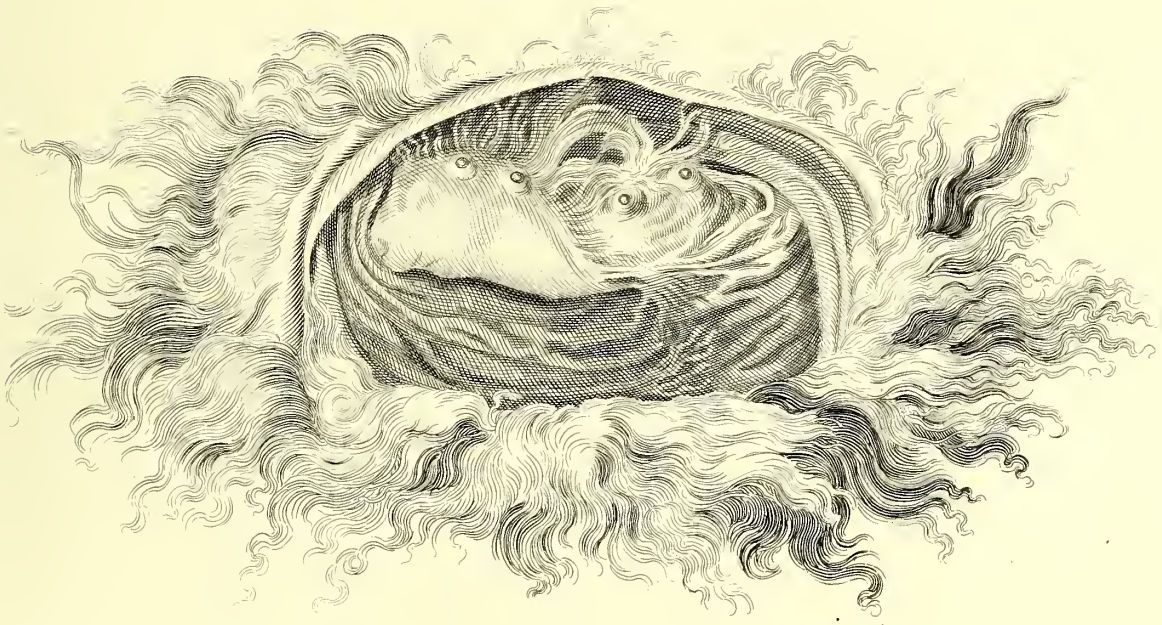


TAB. CXXIV.

LECTURE TWELFTH.

The false belly, containing the nipples.

TAB. CXXIV.



TAB. CXXV.

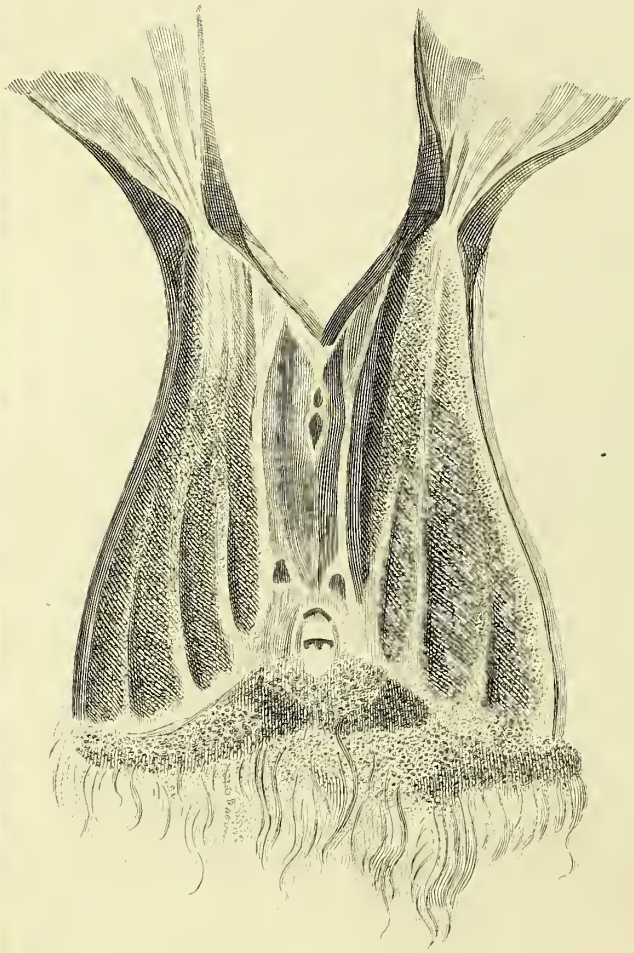
LECTURE TWELFTH.

Figs. 1. and 2. The vagina laid open after parturition.

Fig. 3. A view of the uterus just after parturition.
a. Urinary bladder.
b b. One of the lateral canals.
c c. The other canal laid open.
d d. The cavity of the uterus.
e e. Openings of Fallopian tubes.
f f. Ridge made by the fold of the inner membrane.
g. The remains of corpus luteum.
h. Straight arteries going to the oval enlargement.
i i i i. The ureters.

TAB. CXXV.

Fig. 1.



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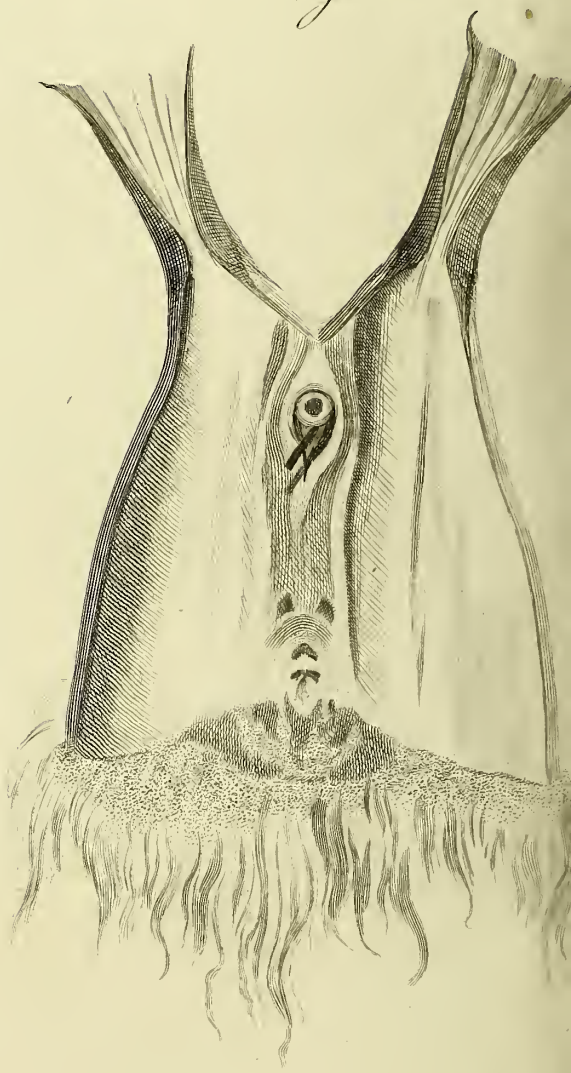
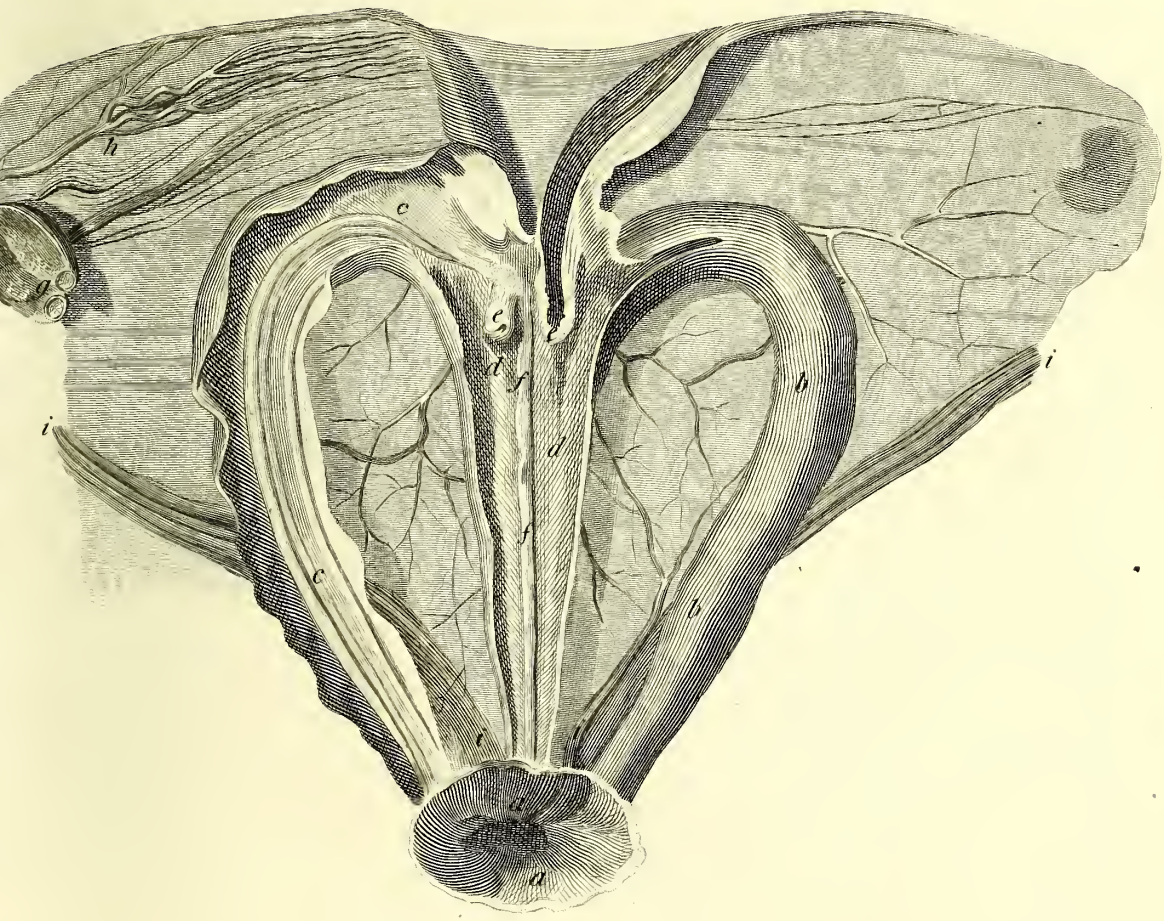


Fig. 3.



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TAB. CXXVI.

LECTURE TWELFTH.

Fig. 1. Fœtus. Natural size.

Fig. 2. Fœtus, nearly dissolved while in uteri.

Fig. 3. Fœtus, attached to the nipple.

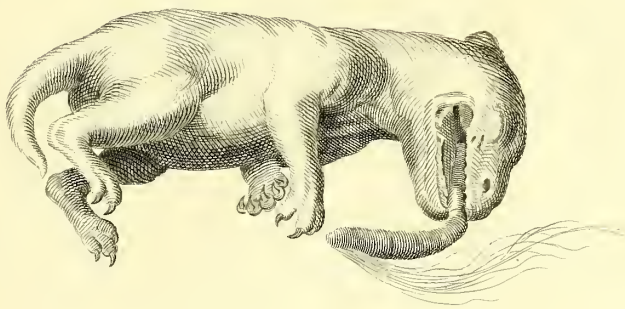
Fig. 4. The nipple.

Figs. 5. and 6. Show the mouth growing on the nipple.

TAB. CXXVI.

Fig. 1 2 3 4

5



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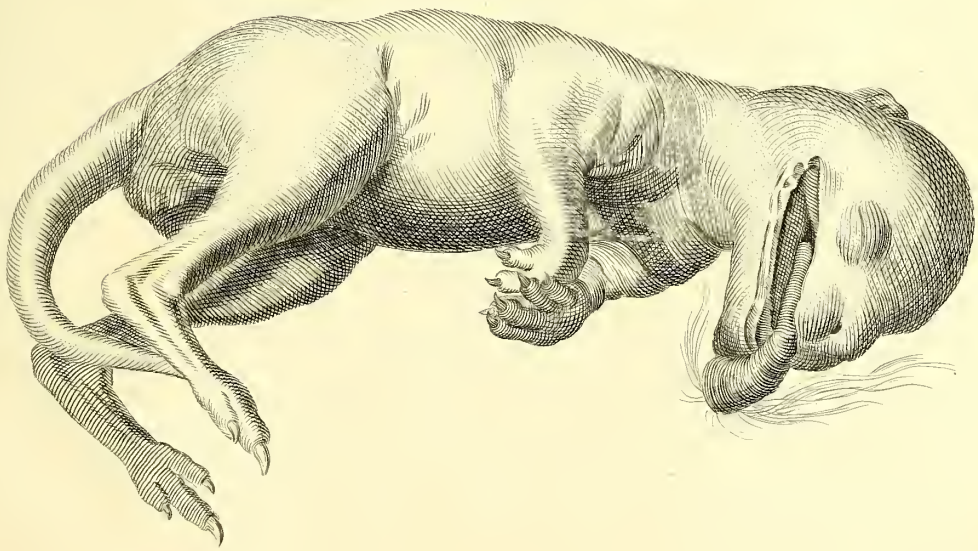

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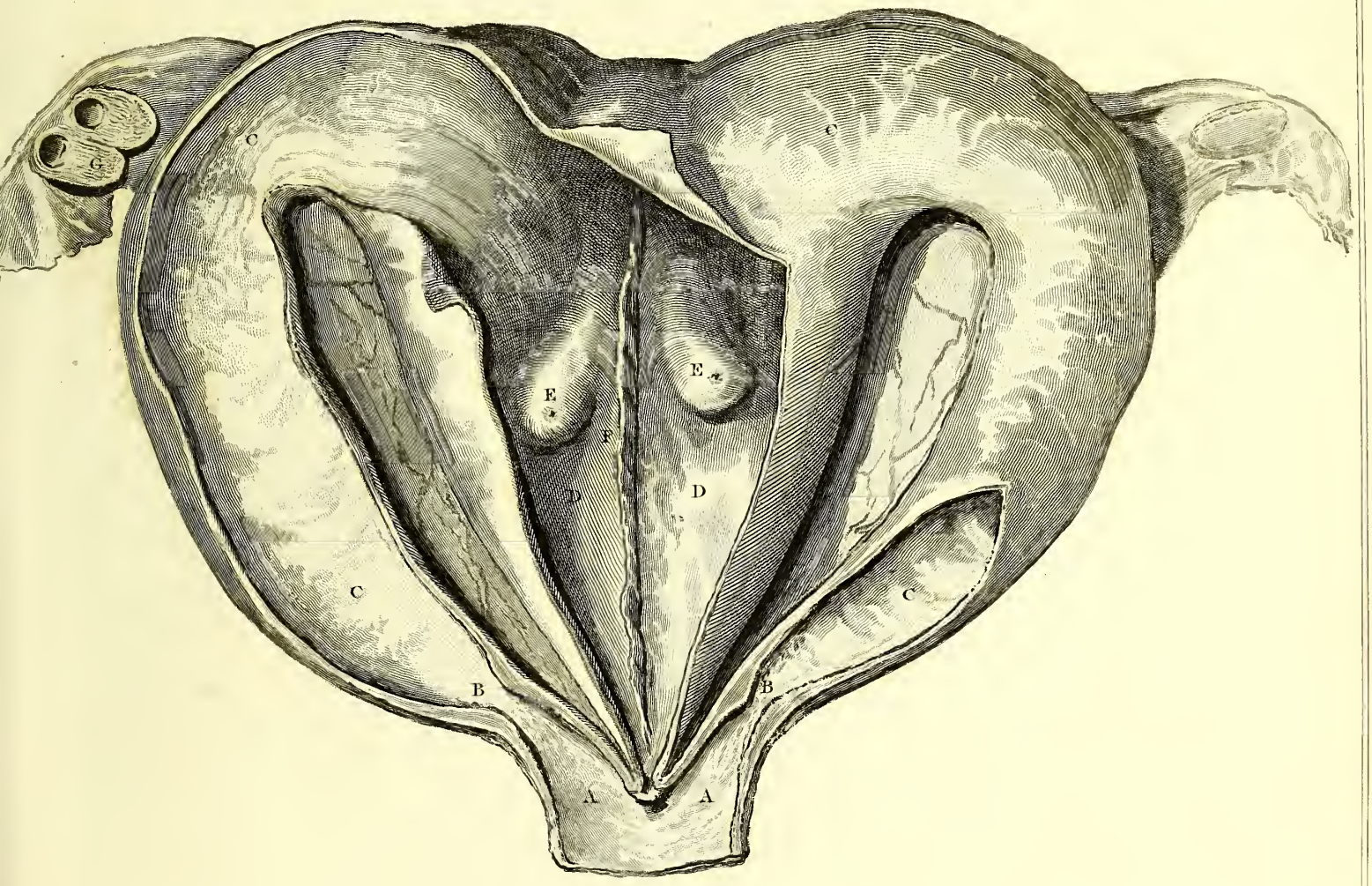
TAB. CXXVII.

LECTURE TWELFTH.

The uterus during pregnancy.



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Js. Basire sc.

TAB. CXXVIII.

LECTURE TWELFTH.

Fig. 1. The ovarium of the kangaroo. Natural size.

Fig. 2. Section. Magnified four diameters.

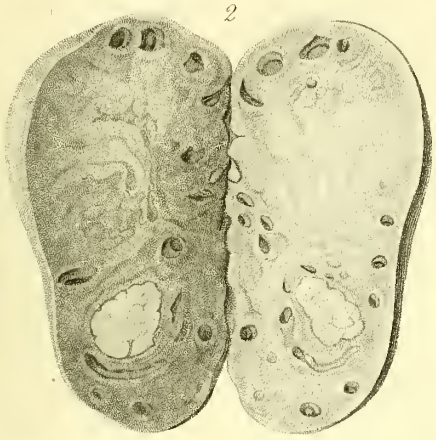
Fig. 3. Section of corresponding ovarium. Magnified four diameters.

Fig. 4. Similar section, old kangaroo. Natural size.

Fig. 5. The same section, magnified four diameters.

Fig 1

2



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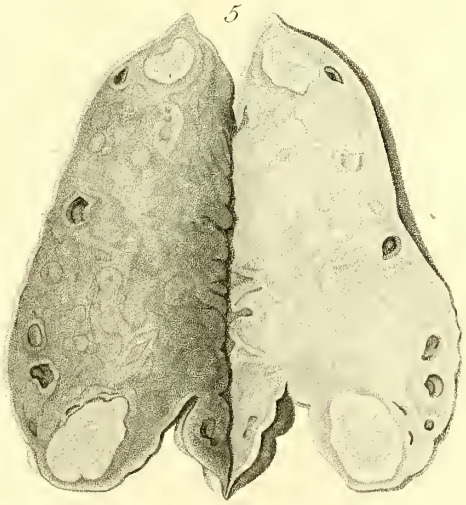

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Js. Basire sc.

TAB. CXXIX.

LECTURE TWELFTH.

Fig. 1. Ovarium of American opossum; front view. Natural size.

Fig. 2. The same, magnified five diameters.

Fig. 3. Opposite side. Magnified five diameters.

Fig. 4. Perpendicular section. Magnified five diameters.

Fig. 5. The same section, magnified ten diameters.

Fig. 6. A young yelk-bag. Magnified twenty diameters.

Fig. 7. A full grown yelk-bag. Magnified twenty diameters.

Fig. 8. A full grown yelk-bag opened. Magnified twenty diameters.

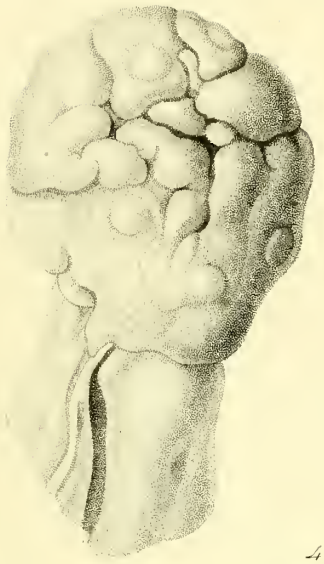
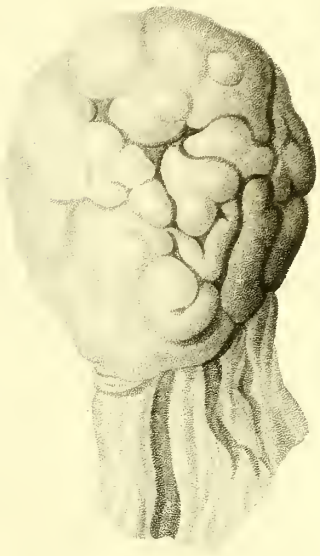
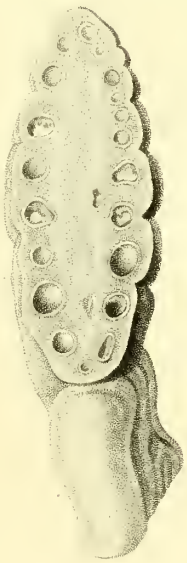
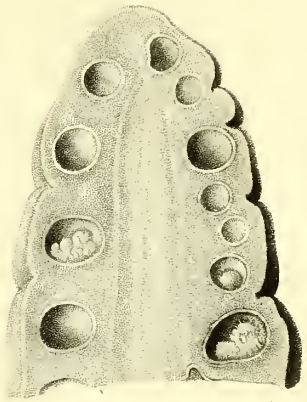


Fig. 1.







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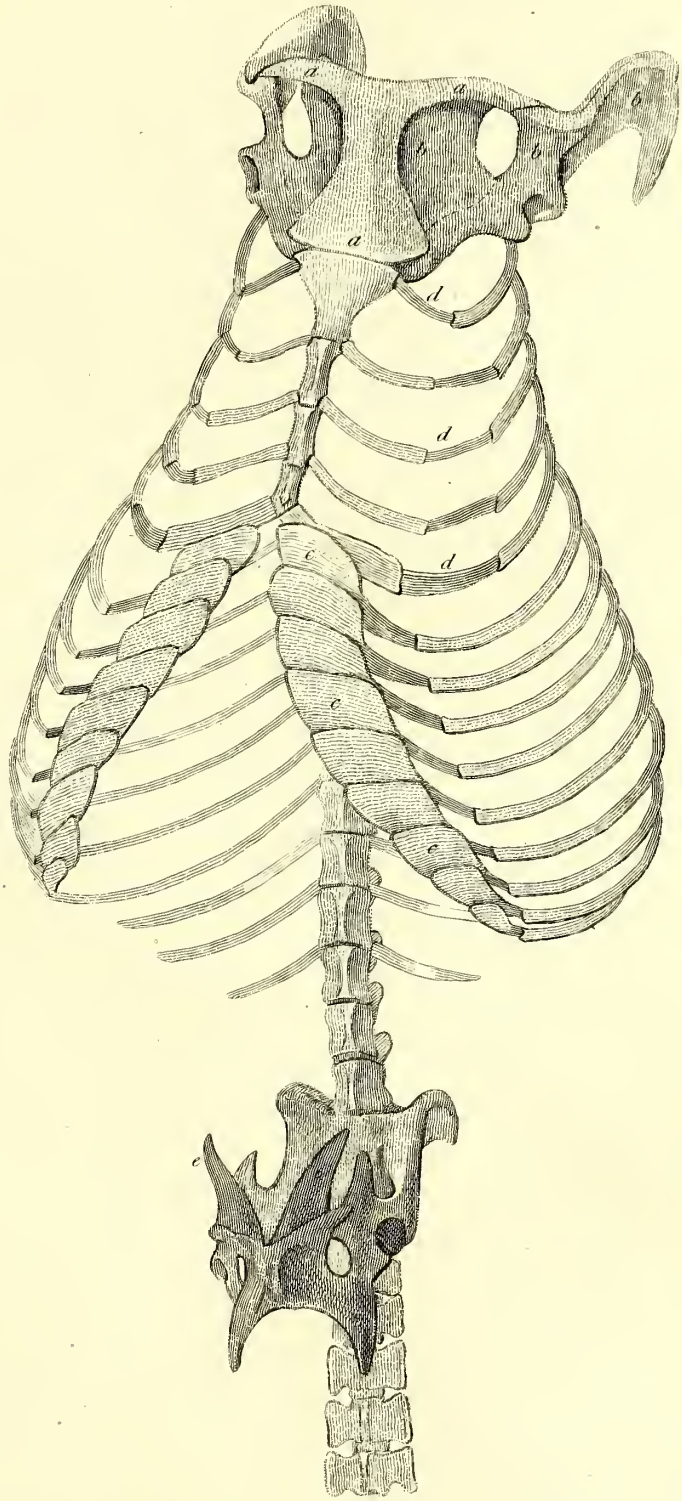
TAB. CXXX.

LECTURE TWELFTH.

Pelvis and chest of ornithorhynchus paradoxus.

TAB. CXXX.



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TAB. CXXXI.

LECTURE TWELFTH.

Penis and uterus, ornithorhynchus paradoxus.

TAB. CXXXI.

Fig. 1.

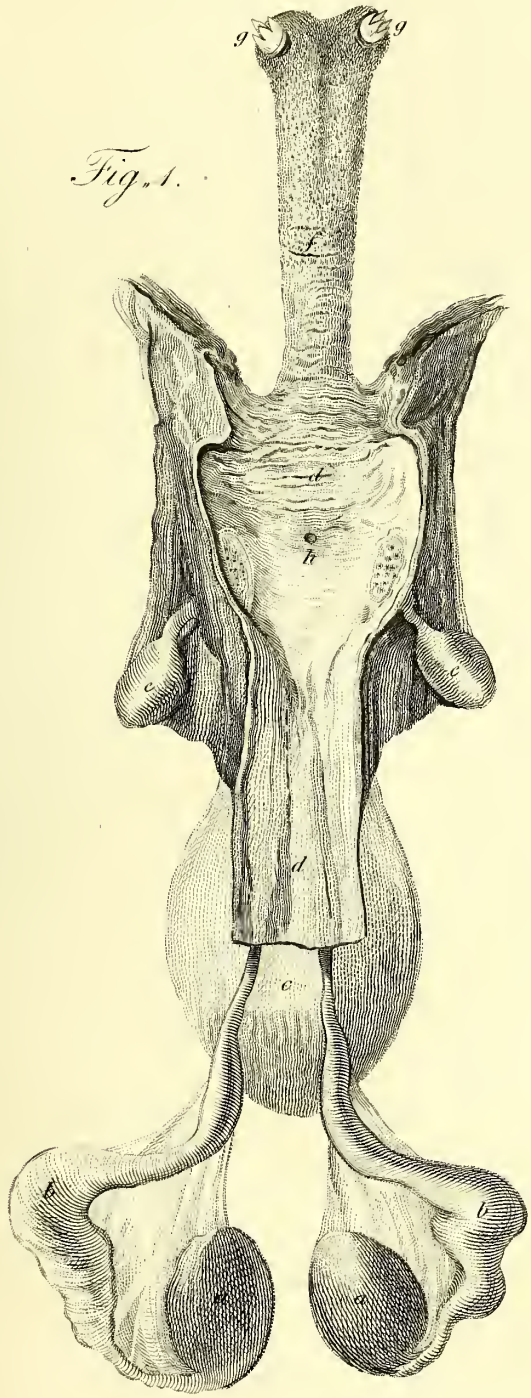
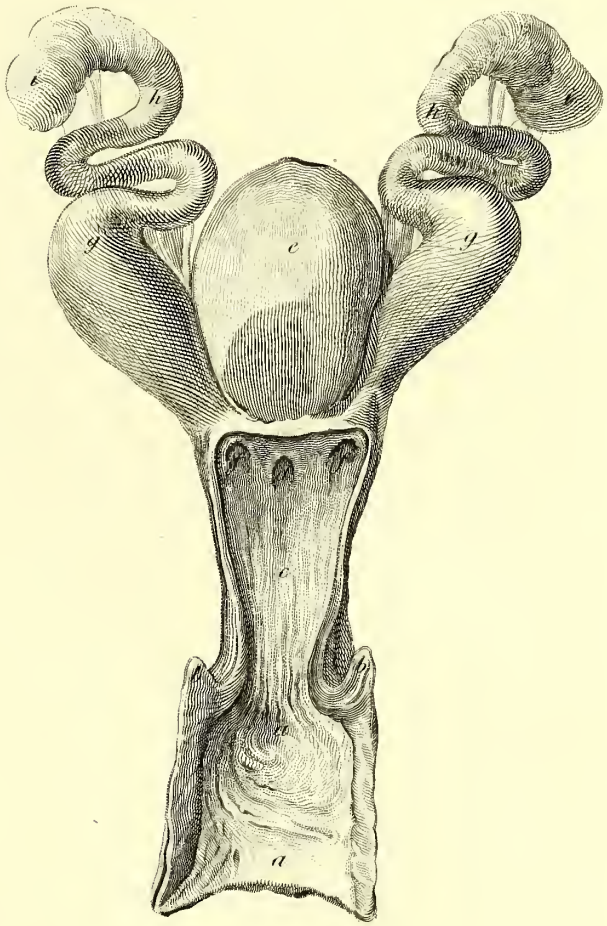


Fig. 2.



Will.m Clift del.

Basire sc

TAB. CXXXII.

LECTURE TWELFTH.

Ornithorhynchus hystrix.

TAB. CXXXII.

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TAB. CXXXIII.

LECTURE TWELFTH.

Ornithorhynchus hystrix. Van Dieman's Land.

TAB. CXXXIII.

W. Clift del.

J. Basire sc.

TAB. CXXXIV.

LECTURE TWELFTH.

Ornithorhynchus hystrix. Penis and drakes, ditto.

Fig. 1.

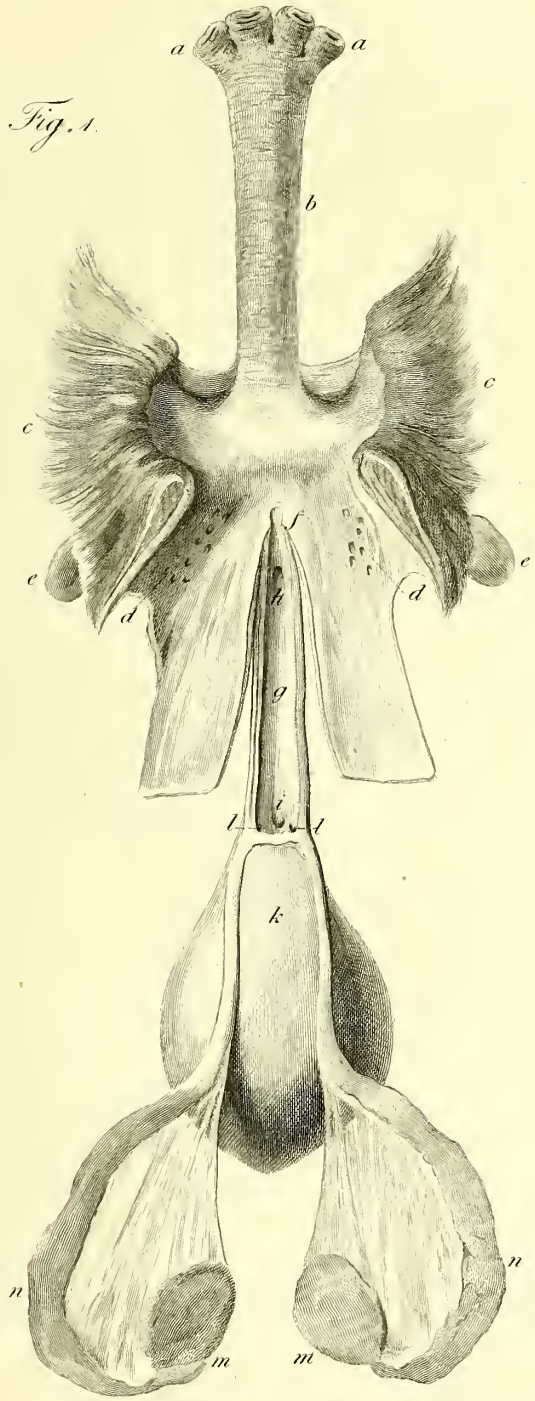
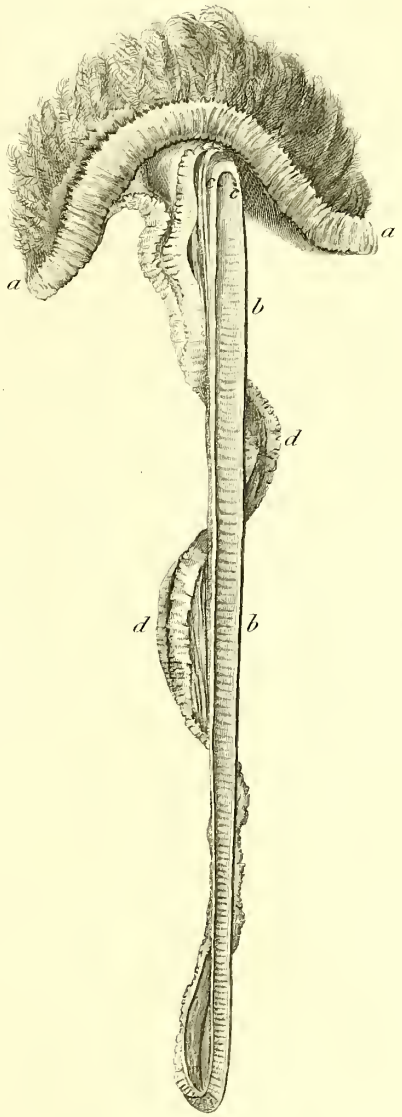


Fig. 2.



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J. Basire sc

TAB. CXXXV.

LECTURE TWELFTH.

Fig. 1. Front view of ovarium ornithorhynchus paradoxus. Natural size.

Fig. 2. The same, magnified five diameters.

Fig. 3. Back view. Magnified five diameters.

Fig. 4. A small portion, fig. 3. Magnified ten diameters.

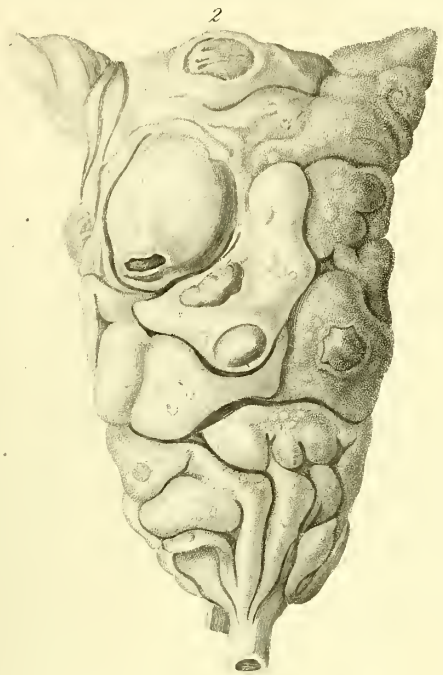
Fig. 5. Internal view of the same. Magnified ten diameters.

Fig. 6. A full grown yelk-bag. Magnified twenty diameters.

Fig. 7. A young yelk-bag and contents. Magnified twenty diameters.

Fig. 8. A full grown yelk-bag. Magnified twenty diameters.

Fig. 9. Globules of the yelk diluted in water. Magnified four hundred diameters.



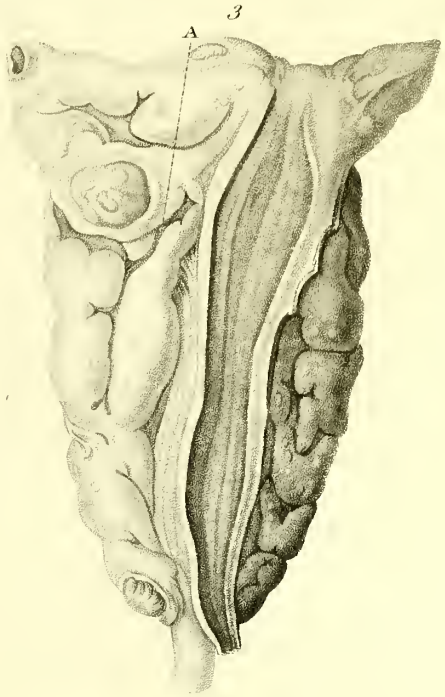
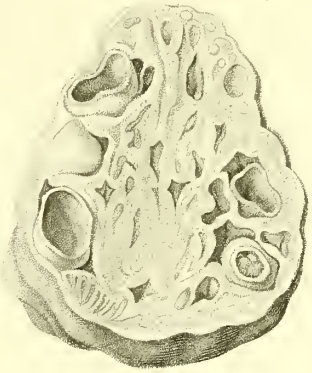
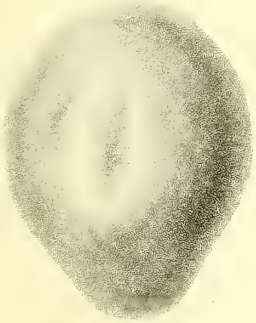
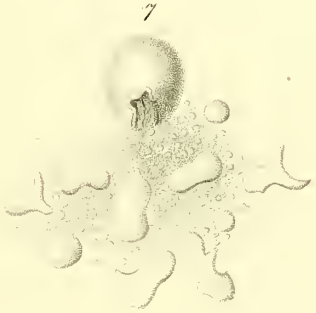


Fig. 1.







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TAB. CXXXVI.

LECTURE TWELFTH.

Fig. 1. Front view of the ovarium of a hen ; natural size.

Fig. 2. Small portion ; natural size.

Fig. 3. The same ; magnified five diameters.

Fig. 4. Back view ; natural size.

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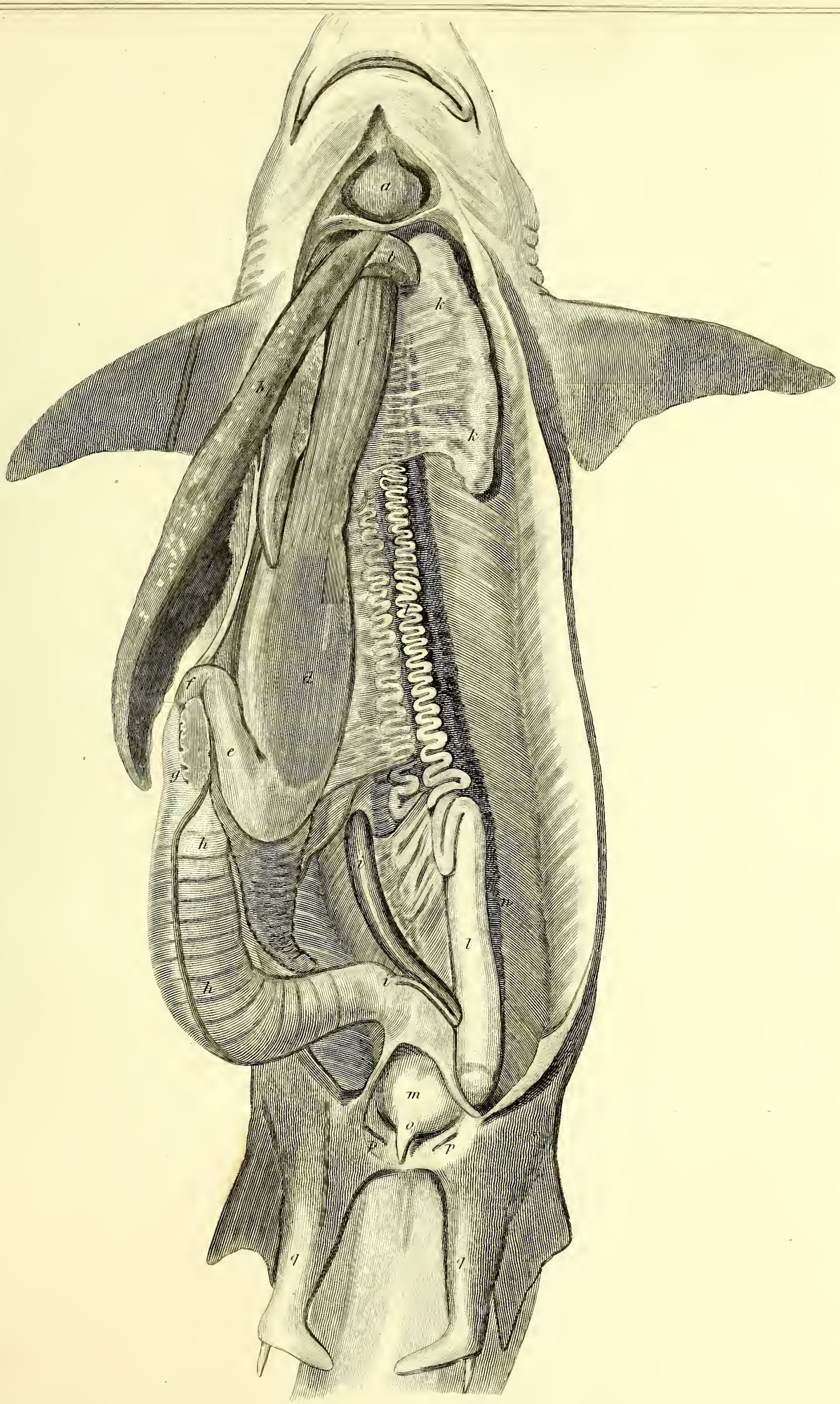
TAB. CXXXVII.

LECTURE THIRTEENTH.

Fig. 1. Squalus acanthias male, to show the organs of generation in breeding season.

a. Heart.
b. Liver, left lobe cut away.
c. Œsophagus.
d. Cardiac portion of stomach.
e. Pyloric portion.
f. Cavity between pylorus and duodenum.
g. Duodenum.
h h. Valvular intestine.
i i. Appendix to intestine.
k k. Testicle.
l l. Vas deferens filled with semen.
m. Urinary bladder.
n. Kidney.
o. Penis.
p p. Orifices leading into abdomen.
q q. Claspers.



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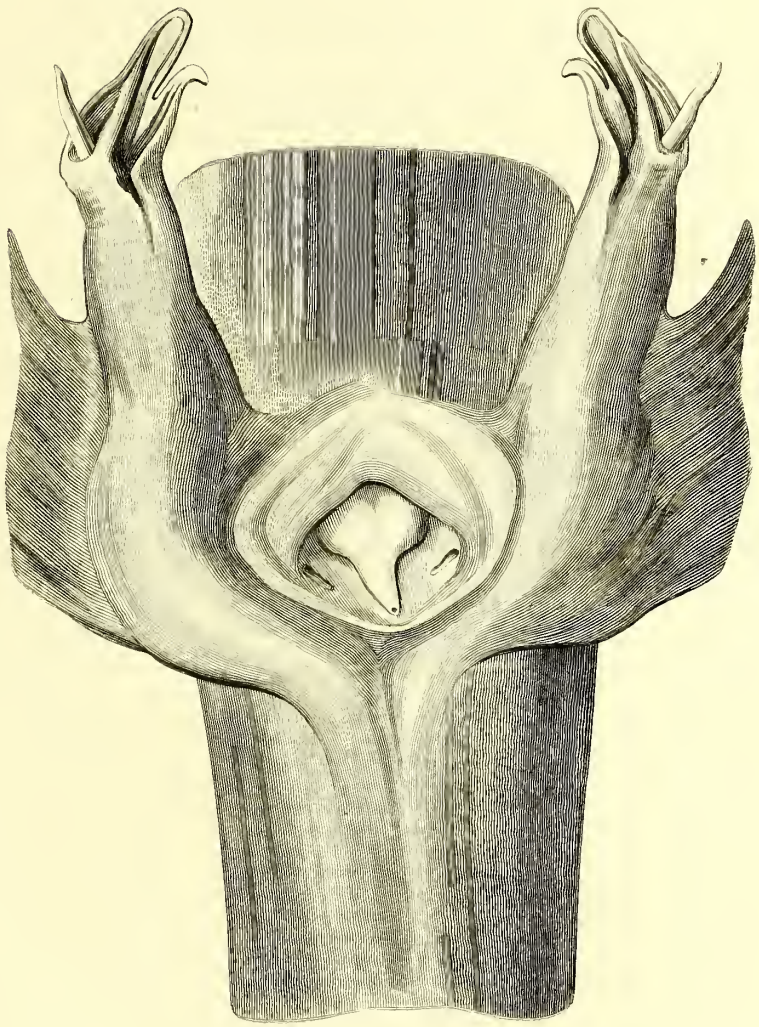
F. Basire sc.

TAB. CXXXVIII.

LECTURE THIRTEENTH.

To show the penis and holders.

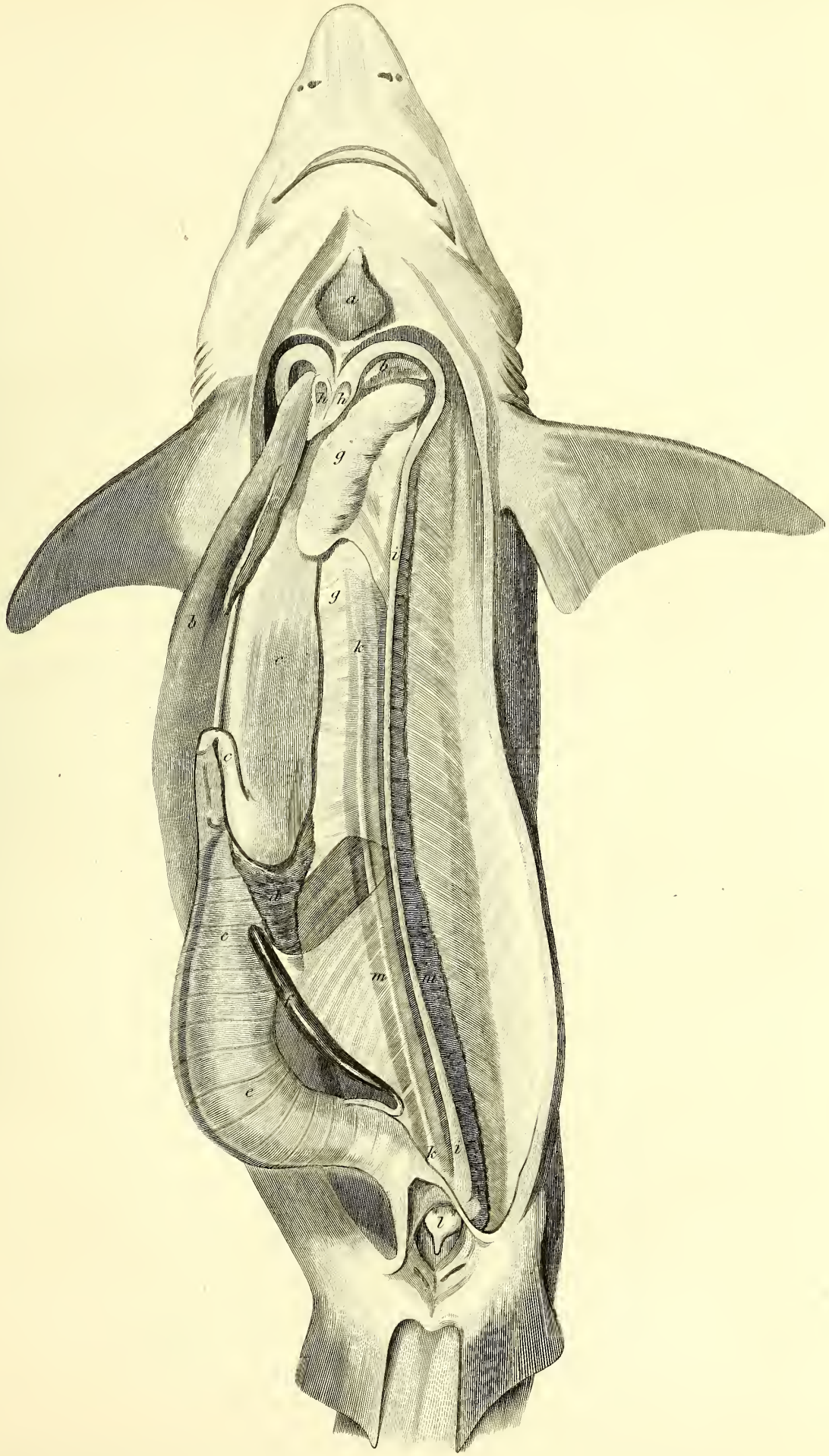


W. Clift del. F. Basire sc.

TAB. CXXXIX.

LECTURE THIRTEENTH.

The female organs.
a. Heart.
b b. Liver.
c c. Stomach.
d. Spleen.
e e. Intestine.
f. Appendix.
g g. Ovaria.
h h. Openings of oviducts.
i i. Oviduct.
k k. Opposite oviduct.
l. Clitoris.
m. Kidney.



W. Clift del.

P. Basire sc.

TAB. CXL.

LECTURE THIRTEENTH.

Fig. 1. Oviduct of the same shark.
a. The orifice which receives the ova.
b. The first portion, oviduct.
c c. The second portion.
d d. The third portion, containing ova.

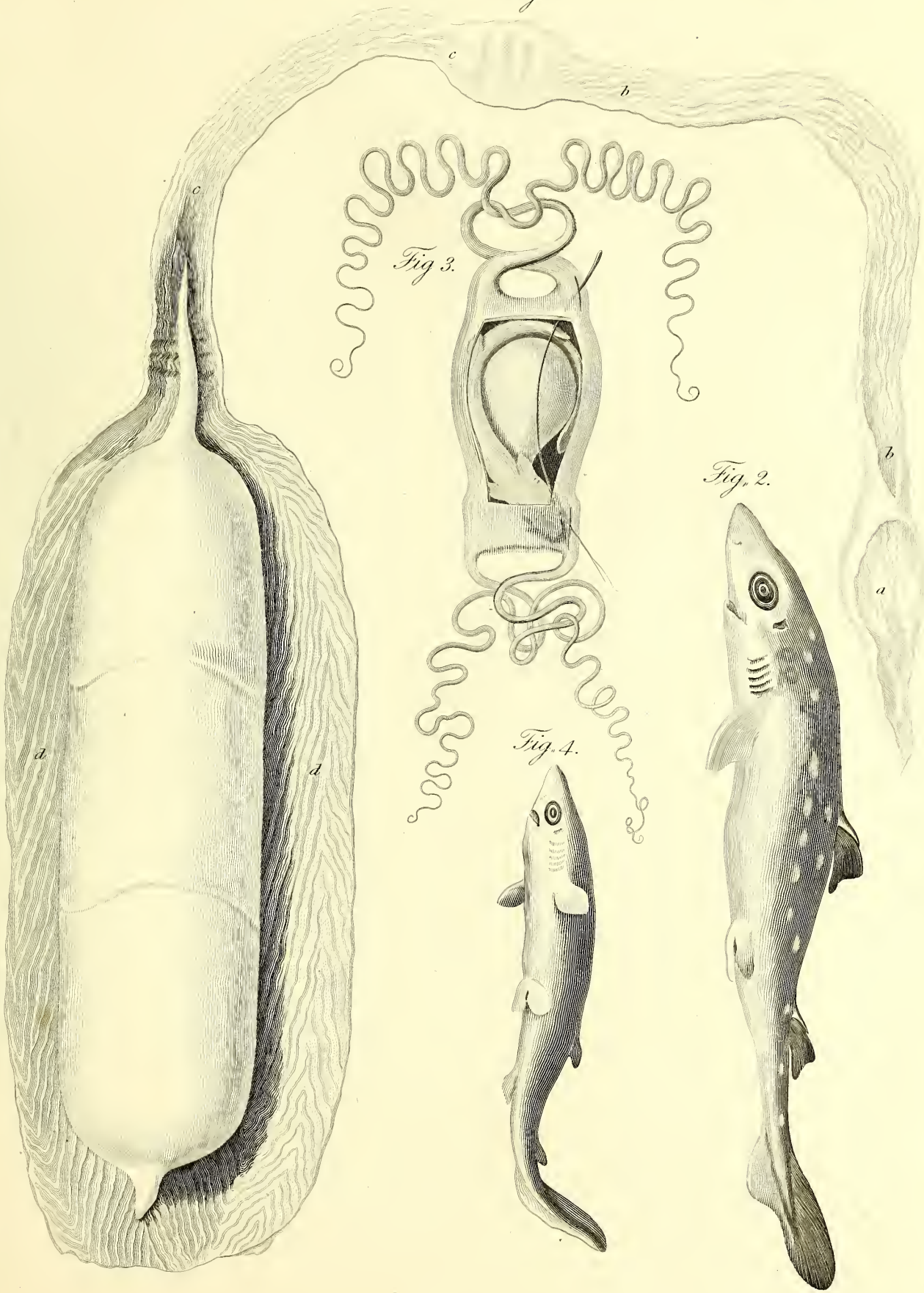
Fig. 2. Young.

Fig. 3. Ovum squalies canicula.

Fig. 4. Young canicula.

TAB. CXL.

Fig. 1.



W. Clift del.

T. Basire.

TAB. CXLI.

LECTURE THIRTEENTH.

The helix janthina.

Fig. 1. The ova of the helix janthina in the shell. Magnified two diameters.

Fig. 2. A portion of the nidus. Magnified twelve diameters.

Fig. 3. A string of the nidus. Magnified twenty-five diameters.

Fig. 4. Two ova and empty chamber. Magnified fifty diameters.

Fig. 5. One ovum. Magnified fifty diameters.

Fig. 6. The same bruised. Magnified fifty diameters.

Fig. 7. A camerated nidus from Carolina. Of the natural size.

Fig. 1.

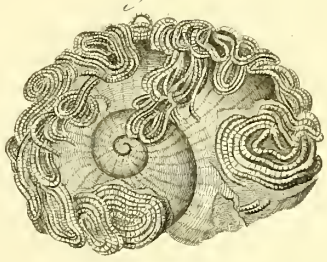
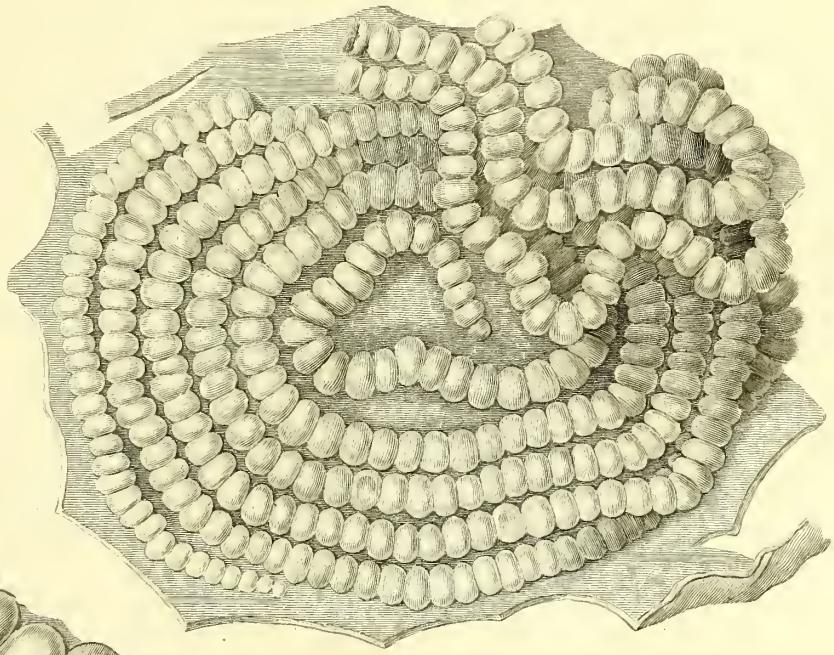


Fig. 2.



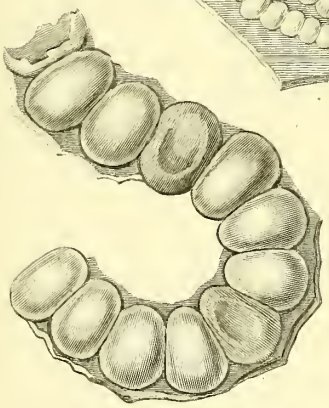


Fig. 3.

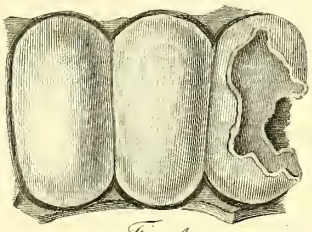


Fig. 4.

Fig. 5.

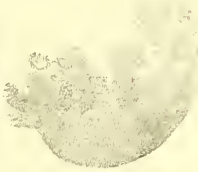


Fig. 6.

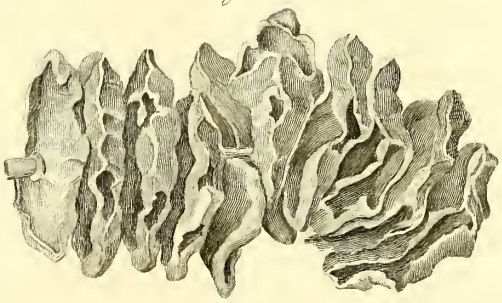


Fig. 7.

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TAB. CXLII.

LECTURE THIRTEENTH.

Fig. 1. The shell of argonauta having ova of octojius attached to it. Magnified two diameters.

Fig. 2. Cluster of the same ova. Magnified twelve diameters.

Fig. 3. One magnified twenty-five diameters.

Fig. 4. A yelk.

Fig. 5. Transverse section.

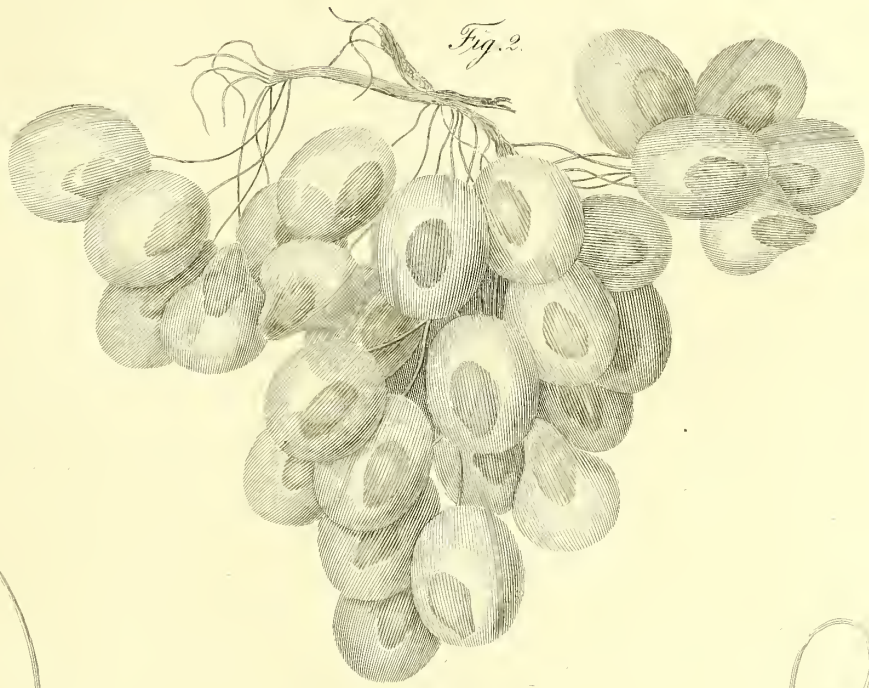
Fig. 6. Longitudinal section. These three magnified fifty diameters.

Fig. 7. A collapsed egg. Magnified twenty five-diameters.

TAB. CXLII.

Fig. 1.

Fig. 2.



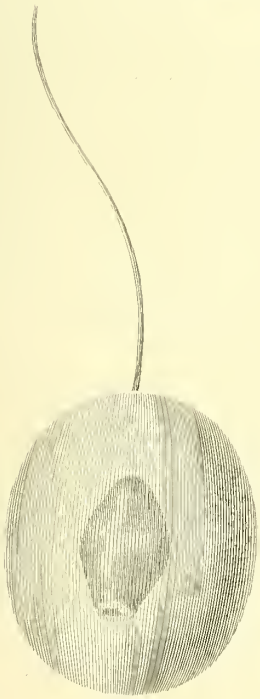


Fig. 3.

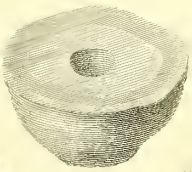


Fig. 5.

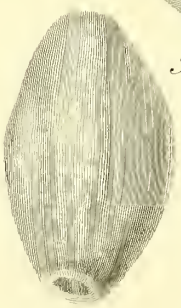


Fig. 4.

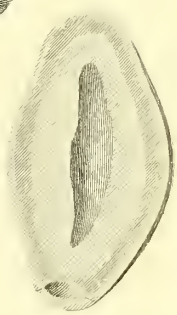


Fig. 6.

Fig. 7.

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TAB. CXLIII.

LECTURE THIRTEENTH.

Fig. 1. A lamprey of the natural size, laid open to show the ovarium beginning to shed some of the eggs into the cavity of the belly.

The testicle lies on the side, and beyond it the kidney.

Fig. 2. A portion of the ovarium, and testicle of the natural size, when the ova are beginning to enlarge.

These parts are displayed in a magnified state in the following plate, so as here to require no further explanation.

Fig. 1.

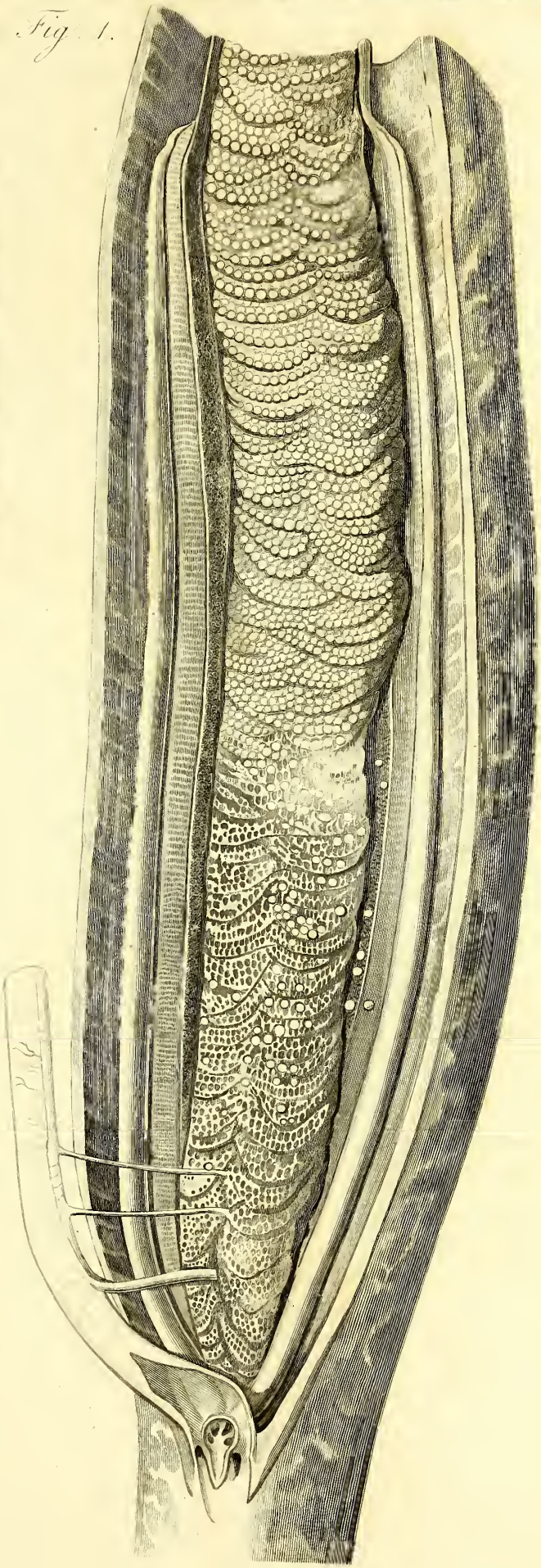
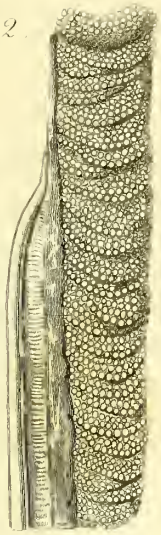


Fig. 2.



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TAB. CXLIV.

LECTURE THIRTEENTH.

Fig. 1. Anterior view of the ovaria and testicle of the lamprey before the breeding season. Magnified two diameters.

Fig. 2. A small portion. Magnified five diameters.

Fig. 3. Posterior view of the ovarium and testicle in the breeding season. Magnified two diameters.

Fig. 4. A small portion. Magnified five diameters.

Fig. 5. Anterior view of a portion of the ovaria, testicles, and air-bladder of the conger. Of the natural size.

Fig. 6. The same, magnified five diameters.

Fig. 7. The same, magnified fifty diameters.

Fig. 1.

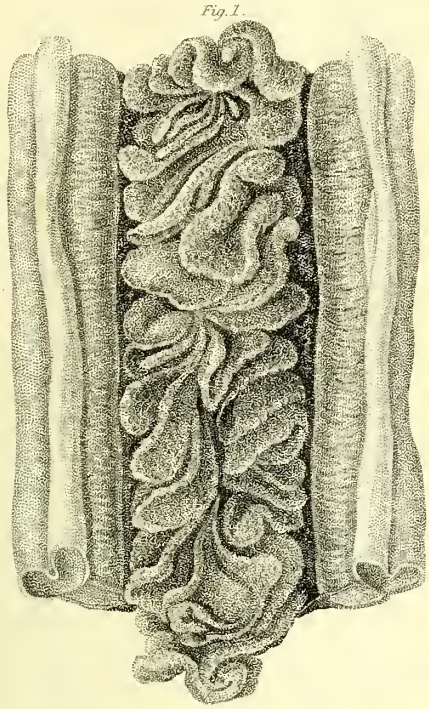


Fig. 3.

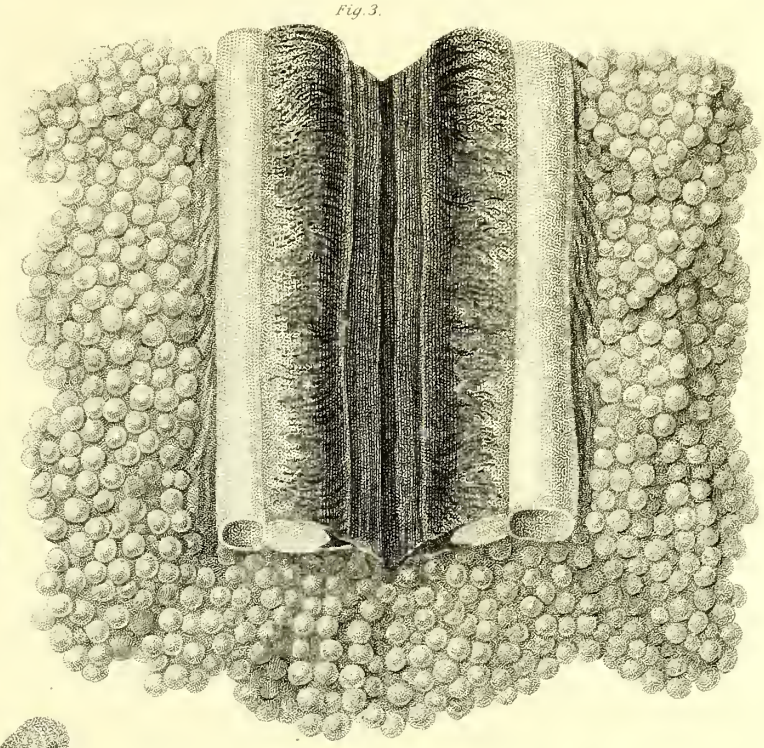


Fig. 2.

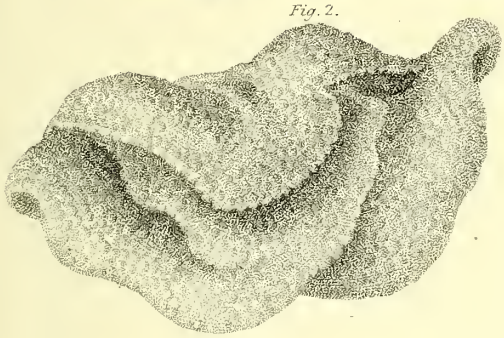


Fig. 4.

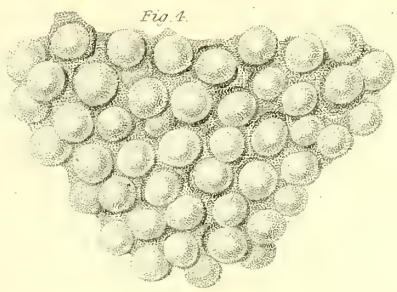


Fig. 5.

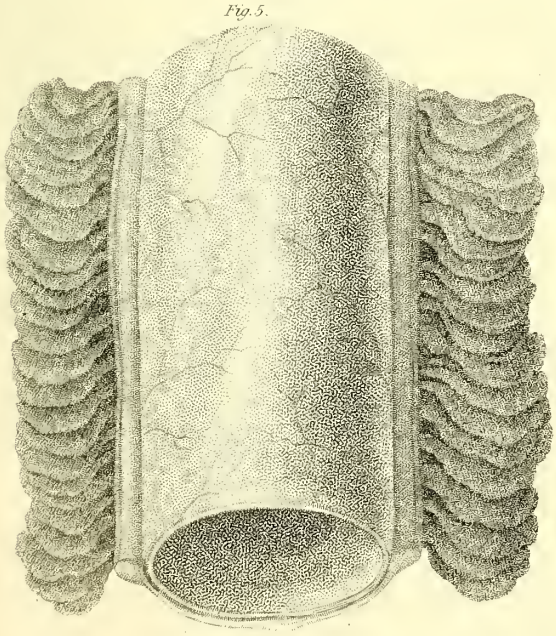


Fig. 6.

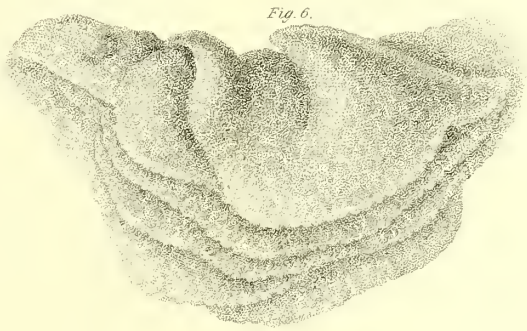
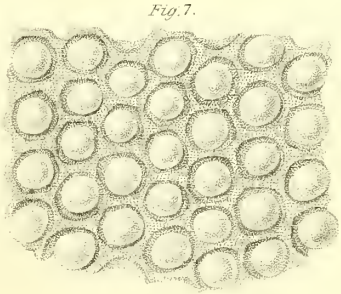


Fig. 7.



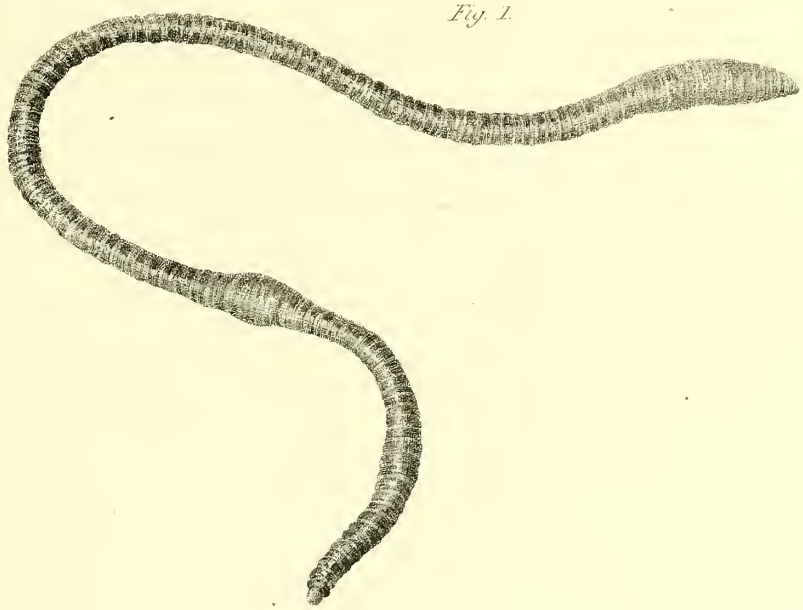
TAB. CXLV.

LECTURE THIRTEENTH.

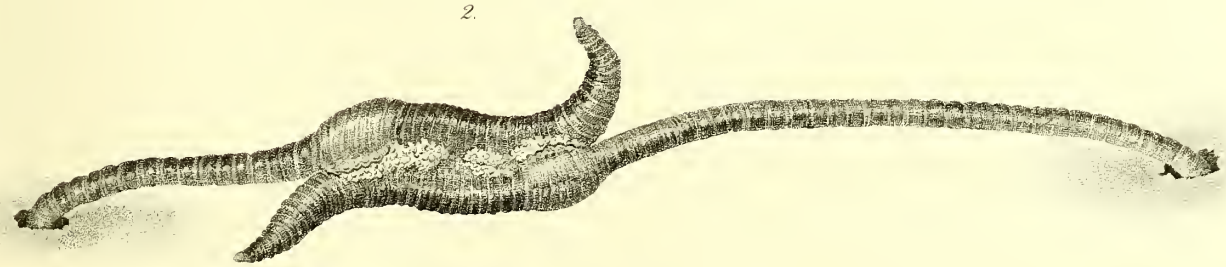
Fig. 1. The earth-worm in its natural easy state while alive. The tail part is uppermost. Natural size.

Fig. 2. Two worms united together, while the tail of each is within the ground. When separated, no appearance of protruded organs of generation are met with, so that there can be no mutual impregnation. The agitation produced by the act of copulation appears to burst the testicles of each individual, so as to impregnate its ova, and afterwards distribute them into the decipimenta, so that they are self-impregnating animals.

Fig. 1.



2.



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J.ᵉ Basire. sculp.ᵗ

TAB. CXLVI.

LECTURE THIRTEENTH.

Fig. 1. A posterior view of an impregnated worm. Magnified two diameters.

Fig. 2. The same worm laid open from behind. Magnified two diameters.

Fig. 3. The upper portion. Magnified four diameters. In the middle line lies the great artery and the six lateral cells carrying red blood: the artery passes up to the head on the outside of the glandular mass surrounding the œsophagus, through the space between the three portions of which the brain is composed. Immediately on the outside of the three lowest arterial cells are the ovaria and testicles. The animal is divided by decipimenta into compartments: one ovarium and one testicle lies on each side of the same compartment with the fourth arterial cell, and one testicle and ovarium in the same compartment with the fifth. In the sixth, there is an ovarium, but no testicle. In the compartment below the arterial cells is one ovarium on each side, very much developed, and directly between them is a hard cartilaginous circle, through which the œsophagus passes.

The others contain membranous bags for the reception of ova. The two lowest ovaria are loose. Towards the lower part, is the cut edge of the lateral slit, by means of which the animals adhere in the act of copulation.

In each of these six compartments is a large conspicuous gland.

The course of the œsophagus, crop, gizzard, and intestine, can be traced behind the great artery.

Fig. 1.

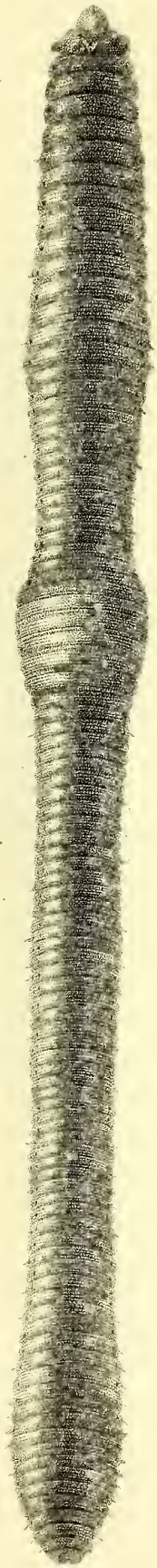


Fig. 2.

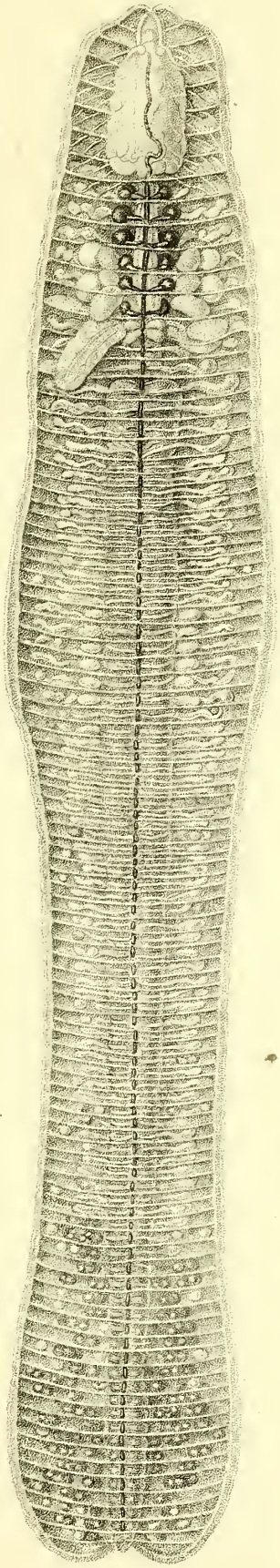
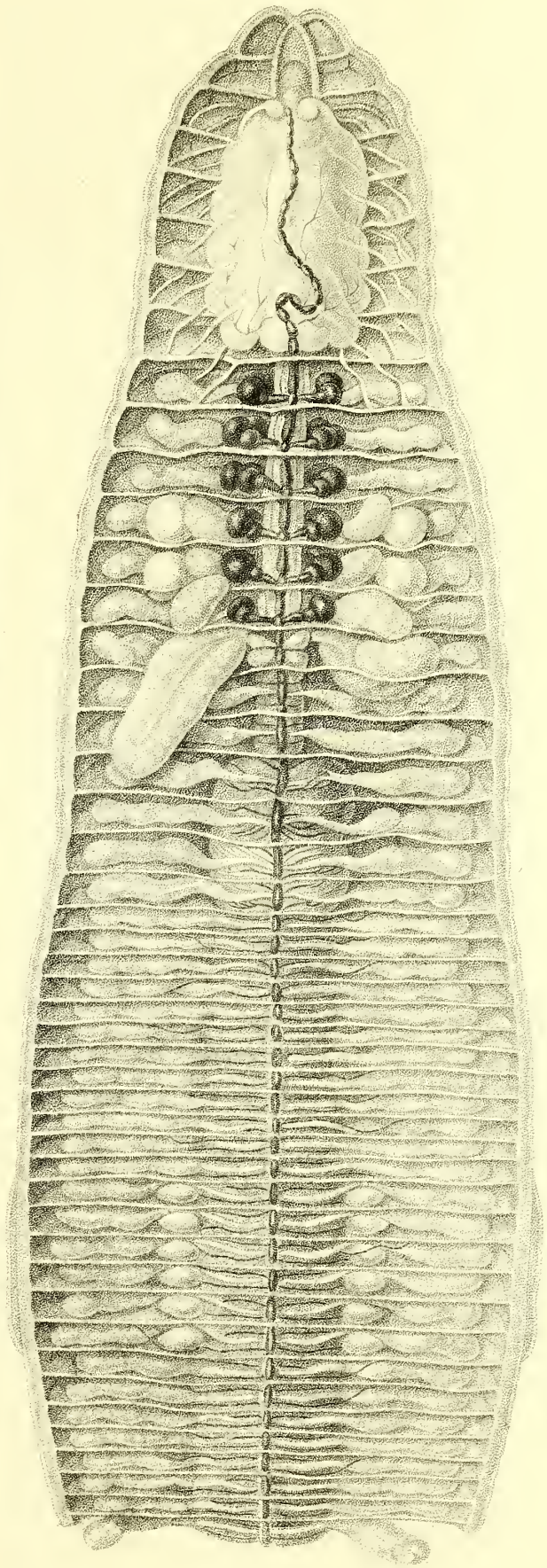


Fig. 3.



Franz. Bauer del.

J. Basire sculp.

TAB. CXLVII.

LECTURE THIRTEENTH.

Fig. 1. An anterior view of the impregnated worm. Magnified two diameters.

Fig. 2. The internal parts. Magnified two diameters.

Fig. 3. The same parts for a certain extent. Magnified four diameters.

From the brain, on each side, are two nervous elongations from two spherical ganglions, situated on the opposite side to form the spinal marrow, which runs along the belly.

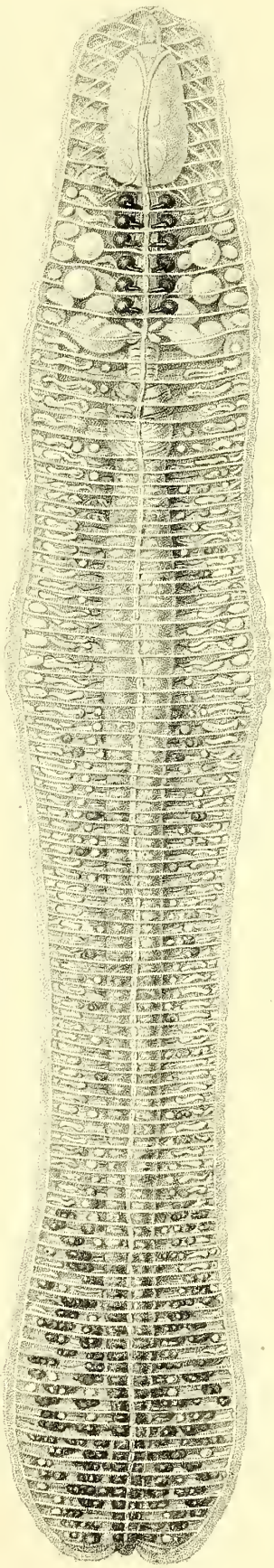
The spinal marrow through its course, and the artery belonging to its coats.

Many parts already described are seen in this view.

The lower developed ovaria appear in this view suspended upon the decipimentum. Immediately below them the termination of the œsophagus is seen, under which is the crop, then the gizzard, leading to the intestine.

Fig. 1.

Fig. 2.



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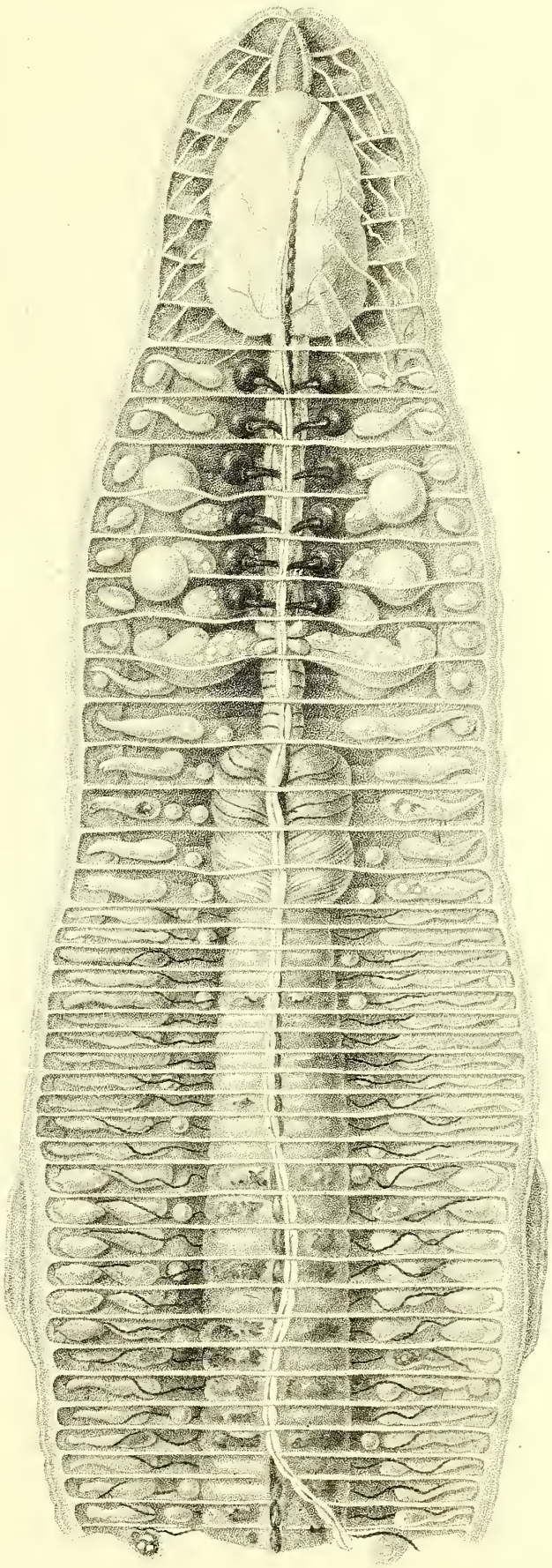

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TAB. CXLVIII.

LECTURE THIRTEENTH.

Fig. 1. Is magnified two diameters. The intestine is laid open, exposing an hexangular tube, which has no communication with the intestine itself, but is posteriorly attached to it, and has two lateral openings into each compartment, showing that it is a reservoir of nutriment for the young.

Fig. 2. A posterior view of a portion of the intestine. Magnified eight diameters.

Upon this intestine are seven contractions formed by the decipimenta, and between each are two orifices leading to the lateral membranous bags from the hexagonal tube.

Between the two rows of openings is a longitudinal passage, forming a communication between the ovaria and the cells in the different compartments.

Fig. 3. A transverse section of fig. 2. seen anteriorly.

Fig. 4. A portion of intestine. Magnified eight diameters, to show the hexangular tube.

Fig. 5. The mouth and head. Magnified six diameters.

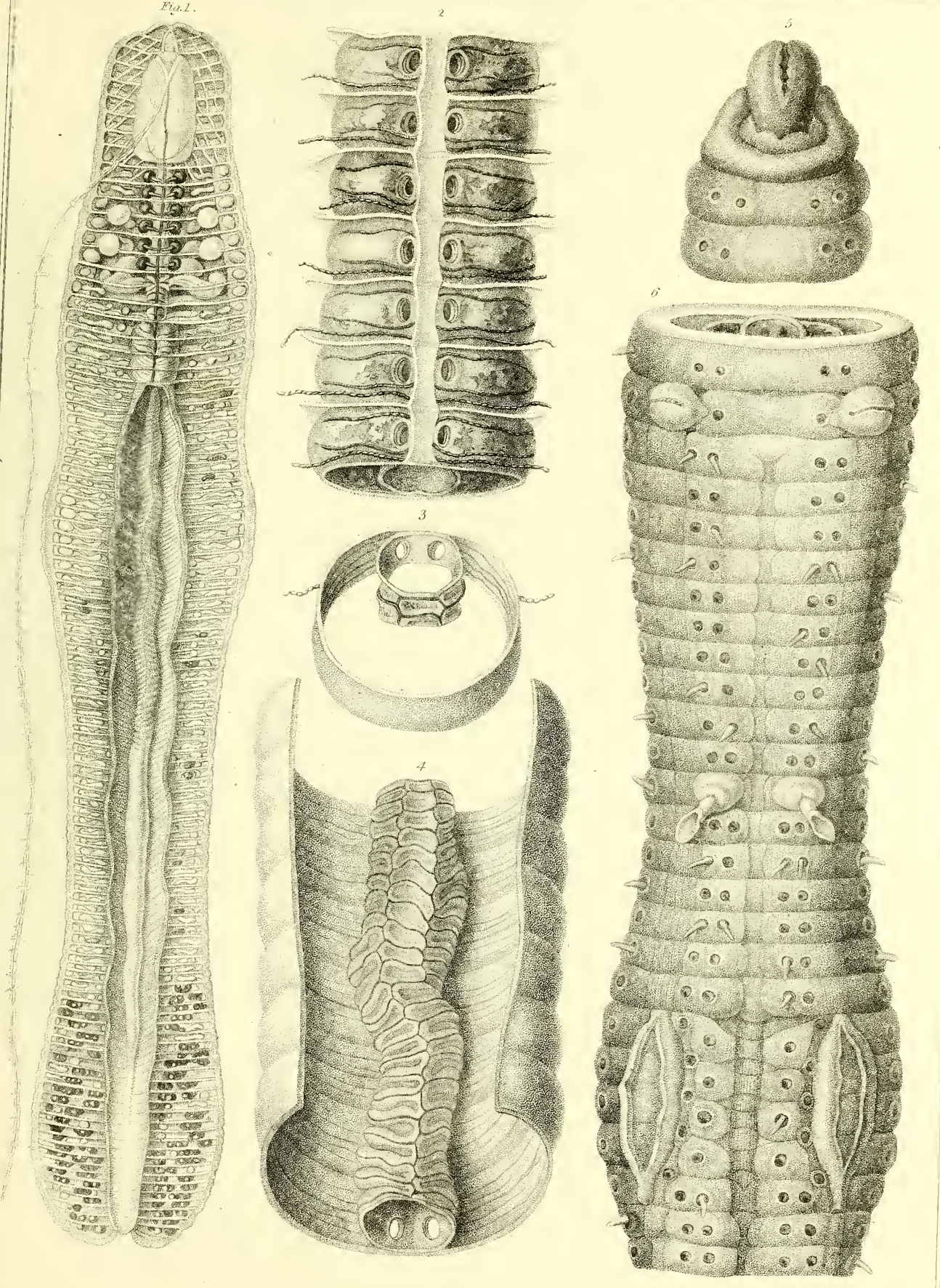
Fig. 6. The parts connected together in the time of copulation. Magnified six diameters.

In the second ring from the top are two hemispherical protuberances with transverse slits.

Two protuberances, from which, during copulation, two spoon-like suckers are projected.

The longitudinal lateral slits, shown in an expanded state, only met with at the time of the coitus.

The openings from the compartments are distinctly seen. On the middle of the belly are two rows, and other two on each side; only distinctly seen when the crysales are projecting through them in the effort for their expulsion.



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J.t Besire sculp.

TAB. CXLIX.

LECTURE THIRTEENTH.

Fig. 1. A testicle and ovarium at the breeding season in situ. Magnified twelve diameters.

Fig. 2. Ova taken from the ovarium. Magnified fifty diameters.

Fig. 3. One of the membranous bags filled with eggs and worms, removed from the compartment which contained it. Magnified fifteen diameters.

a a a. Eggs ready to hatch. Magnified fifty diameters.

b b b. Eggs hatching. Magnified fifty diameters.

c c. Two embryos hatched.

Fig. 4. A membranous bag taken from a compartment lower down in the worm. Magnified fifteen diameters.

a a. Clusters of eggs and embryos agglutinated together. Magnified thirty diameters.

Fig. 5. a a. The embryo in motion just before going into the crysalis state. Magnified thirty diameters.

b. The change into the crysalis begun. Magnified thirty diameters.

c c. The same, magnified fifty diameters.

Fig. 6. The tail portion of a worm opened from behind. Magnified four diameters.

Fig. 7. One of the clusters of the last figure. Magnified thirty diameters.

Fig. 8. The same cluster kept in water for fifteen minutes, and its contents exposed.

Fig. 9. Two perfect crysales from the same cluster. Magnified fifty diameters.

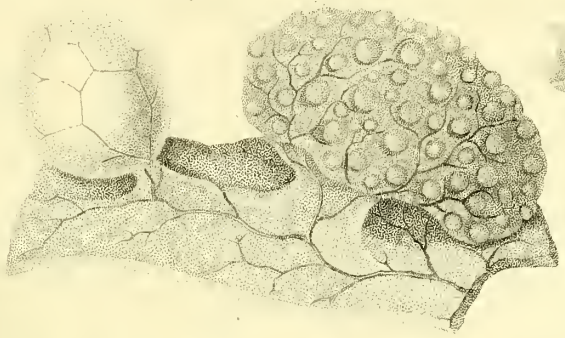

Fig. 1.

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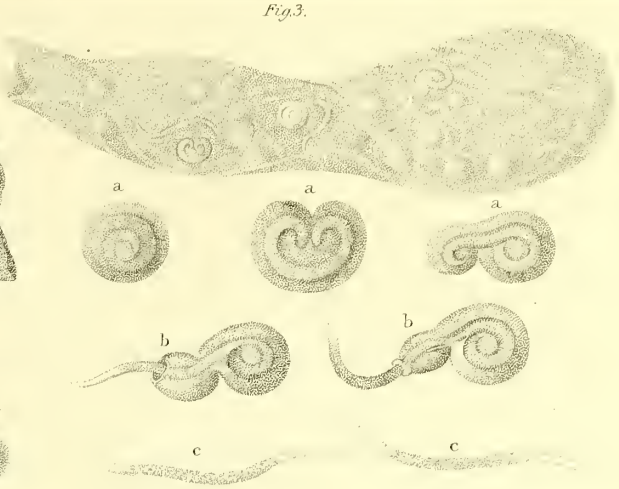

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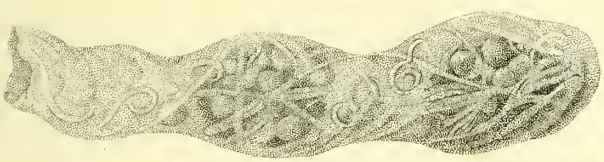
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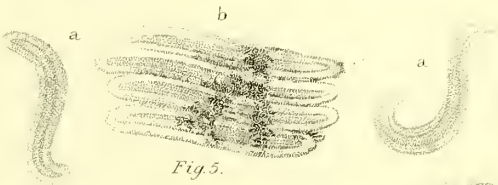

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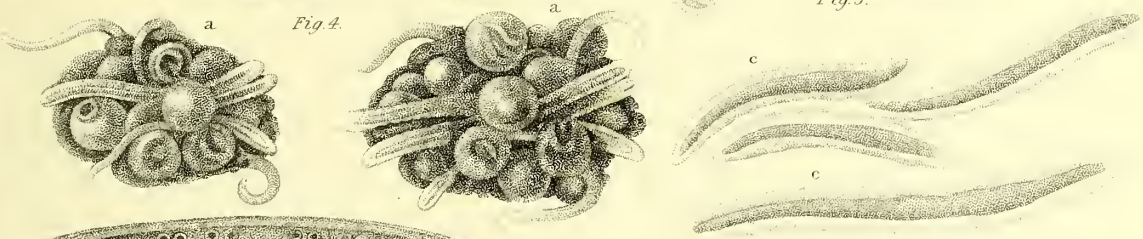

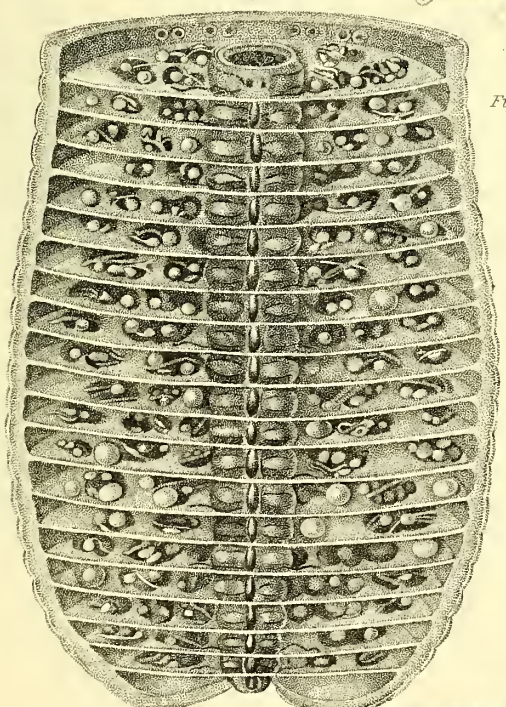
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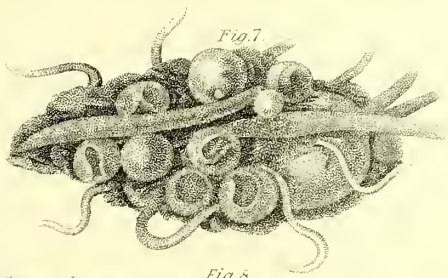
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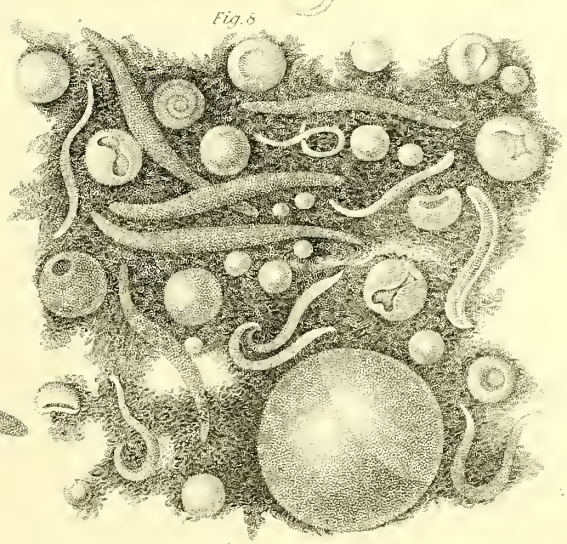
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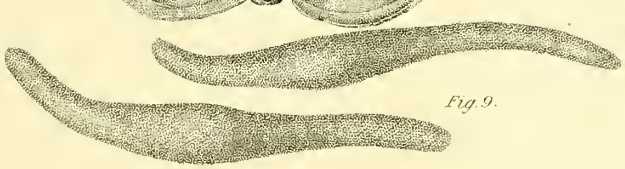
Fig. 9.

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TAB. CL.

LECTURE THIRTEENTH.

A cluster of the lepas anatifera. Natural size.

a. The young arising from the pedicle of a full grown barnicle.

b. One in an earlier stage.

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TAB. CLI.

LECTURE THIRTEENTH.

A cluster of the same species of barnicle; in which the peduncles of the young arise, not by separate roots, but all of them directly from the base of one shell.

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TAB. CLII.

LECTURE THIRTEENTH.

Fig. 1. A portion of the pedicle with the shell of the left valve removed.

Fig. 2. A longitudinal section of fig. 1. to show the eggs within the fibrous substance of the pedicle, the animal being removed to expose the mantle lining the shell in its natural position. Natural size.

Fig. 3. The entire animal exposed, the mantle or lining of the shell turned back. Magnified two diameters.

Fig. 4. The eggs which accumulate before they pass into the pedicle exposed. Magnified two diameters. In the last two figures the tentacula of the right side are removed.

Fig. 5. Shows the natural position of the penis, the tentacula of the left side having been removed. Magnified two diameters.

Fig. 6. A front view of the head. Magnified four diameters.

A. The external jaw.

B. Middle jaw.

C. Internal jaw.

Fig. 7. Side view. Magnified in the same degree.

Fig 8. One of the tentacula. Magnified four diameters.

Fig. 9. The penis. Magnified four diameters.

Fig. 10. Eggs accumulated under the integuments. Magnified fifty diameters.

Fig. 11. Eggs and fibrous substance within the pedicle. Magnified fifty diameters.

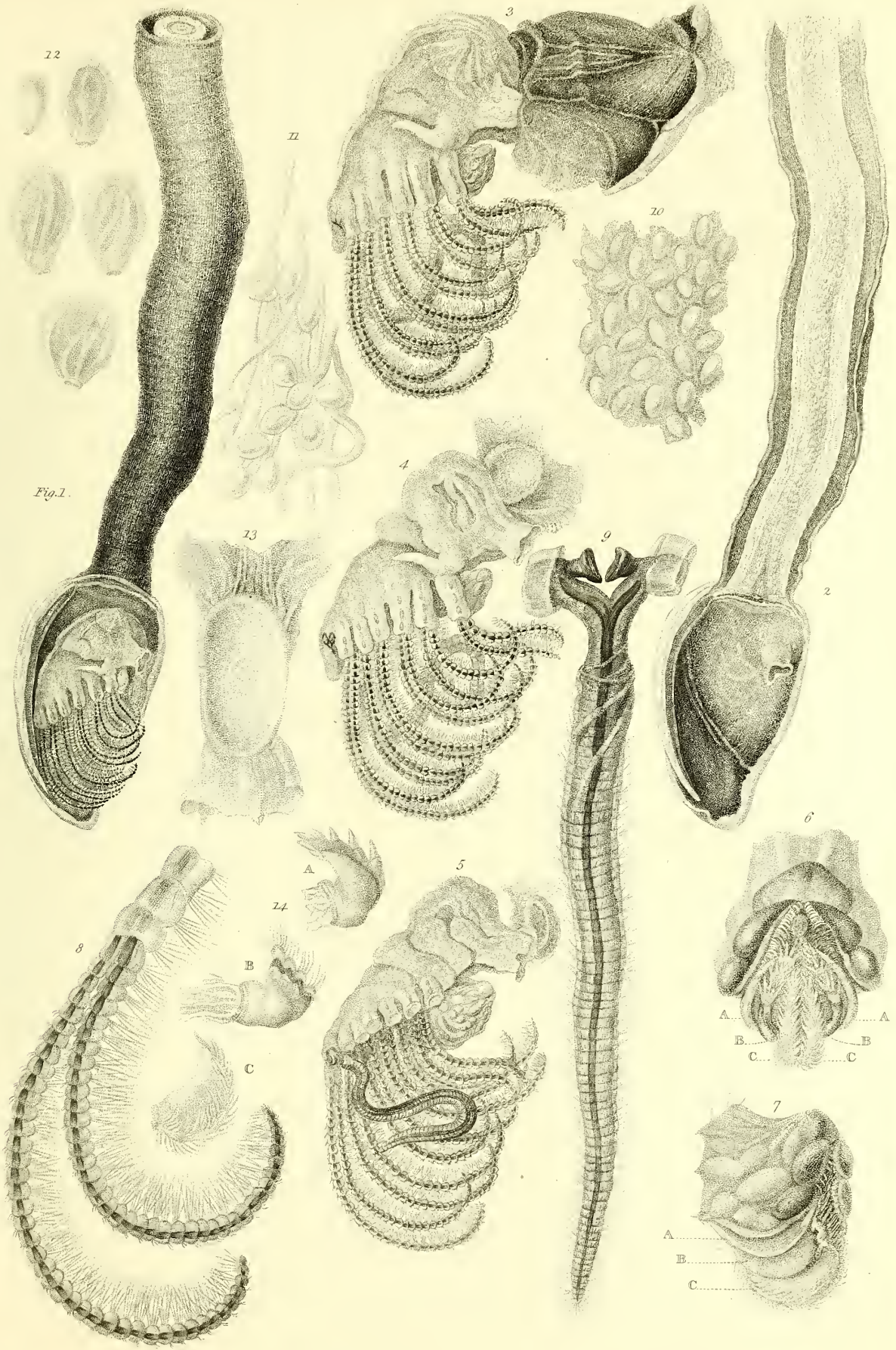
Fig. 12. Separate eggs. Magnified one hundred diameters.

Fig. 13. The membrane lining the shell, at the base of which the mantle is a continuation. Magnified two diameters.

Fig. 14. A. Outer jaw, as in fig. 6.

B. Middle jaw.

C. Inner jaw.



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TAB. CLIII.

LECTURE THIRTEENTH.

Figs. 1, 2, and 3. Ears of diseased wheat.

Fig. 4. One single large worm. Magnified ten diameters.

Fig. 5. An infected one, germen from the lower part of the same spike. Magnified ten diameters.

Figs. 6. to 23. The progress of the eggs and worms. Magnified ten diameters.

TAB. CLII.

Franz. Bauer del.t

Js Basire sc.

TAB. CLIV.

LECTURE THIRTEENTH.

Fig. 1. A group of worms in water, as seen in the field of a microscope.

A. One of the largest worms, in the most usual attitude, laying its eggs.

B. One of the smallest worms.

C D E F G. The young extricating itself from the egg.

H. The empty egg-shell.

I. The dead worms, the rest are worms and eggs, some of which are full, others empty. Magnified one hundred diameters.

Fig. 2. A. Is an egg containing a living worm.

B. An egg left by the worm.

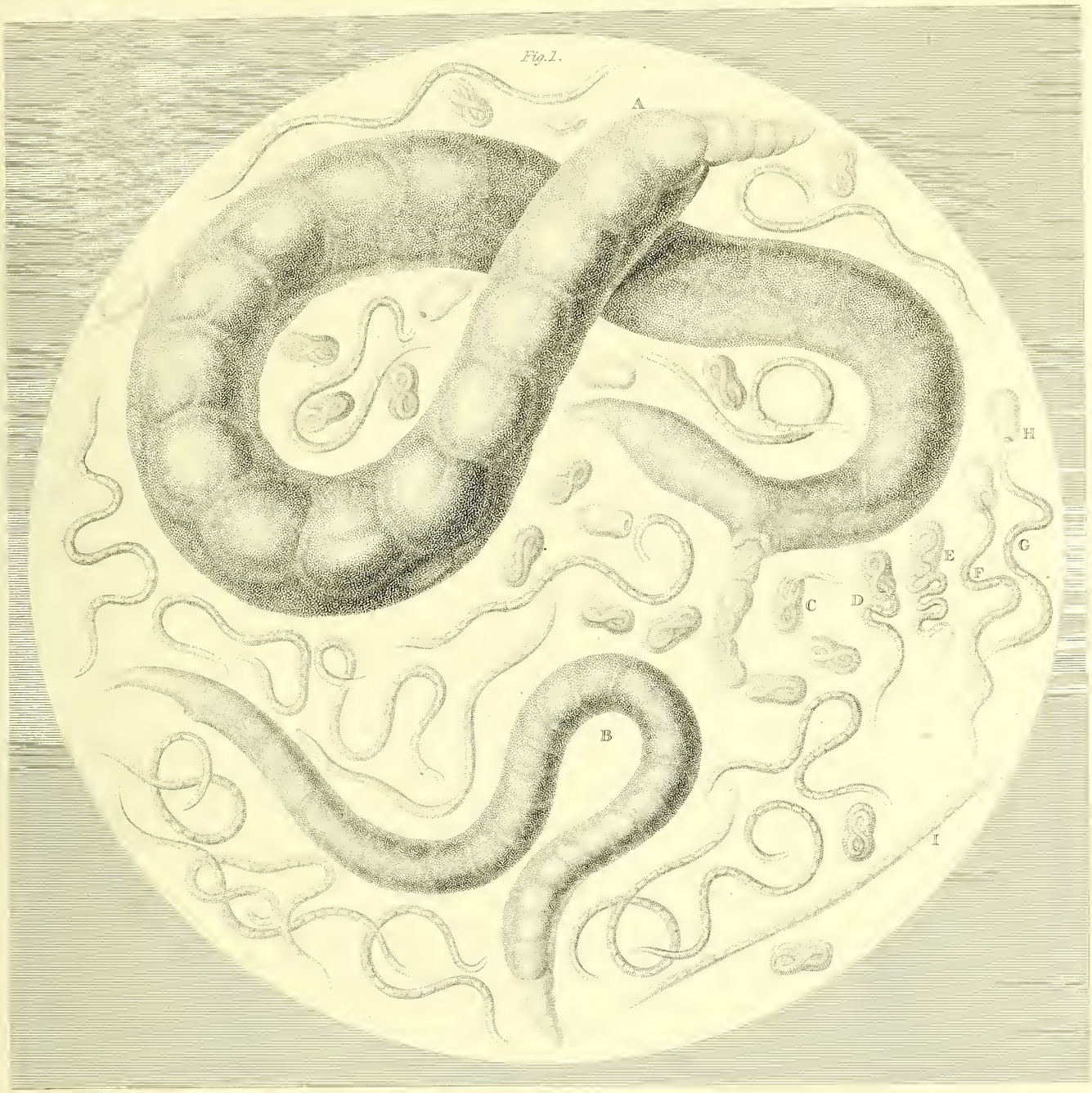
C. An egg in decay.

D D D. Young worms.

E. A dead worm stretched out.

F. A dead worm kept fourteen months in water, just beginning to decay. All these figures magnified two hundred diameters.

Fig. 1.



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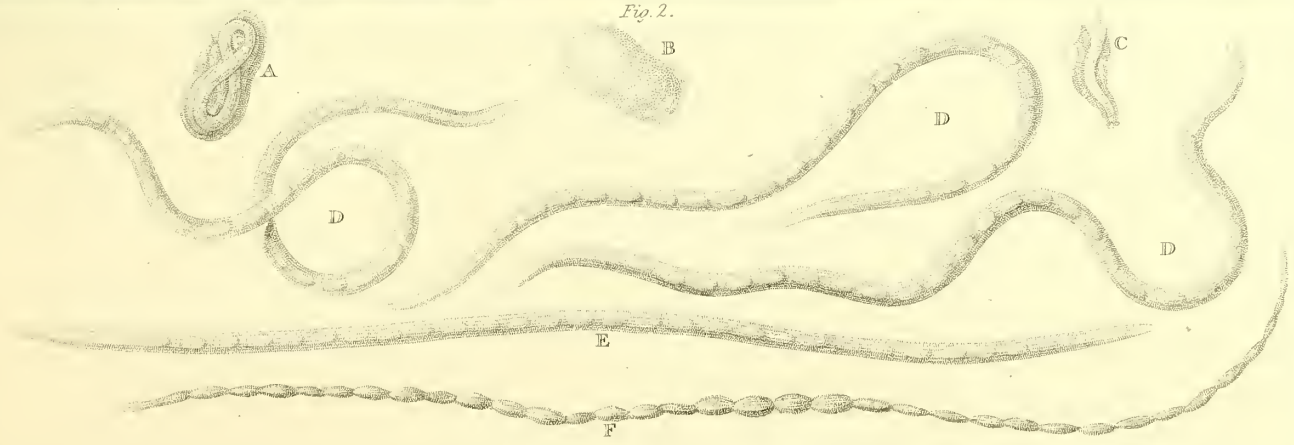

Franz. Bauer del.

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TAB. CLV.

LECTURE FOURTEENTH.

Fig. 1. The ovarium of a laying hen. Natural size.

Fig. 2. A yelk taken out of its bag, and lying in its natural position, horizontally. Natural size.

Fig. 3. A small portion of the yelk, with the molecule lying on its surface: the external membrane is turned aside, and shows a concave aperture, the margin of which circumscribes exactly the molecule, forming the inner areola. Magnified five diameters.

Fig. 4. The bare molecule after being hardened in distilled vinegar. Magnified ten diameters.

Fig. 5. The globules of which the inner areola is chiefly composed. Magnified four hundred diameters.

Fig. 6. An egg found in the oviduct, from which the above ovarium was taken. Natural size.

Fig. 7. The same egg, its soft and semi-transparent shell being removed, exposing the albumen and yelk enclosed in the double membrane which lines the shell. Natural size.

Fig. 8. A small portion of the yelk of the same egg, with the molecule lying on its surface within the margin of the aperture in the inner membrane, the external membrane turned aside. Magnified five diameters.

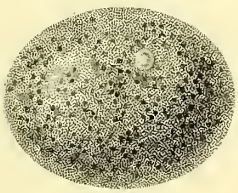
Fig. 9. The same molecule. Magnified ten diameters.

Fig. 10. A new laid egg. Natural size.

Fig. 11. The molecule lying on its bare surface, and the external membrane of the yelk turned aside. Magnified five diameters.

Fig. 12. The molecule hardened in vinegar. Magnified ten diameters.

Fig. 1.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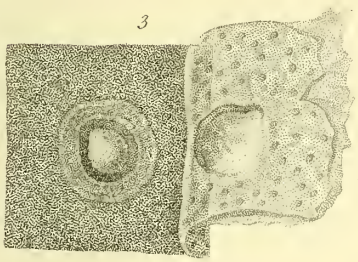
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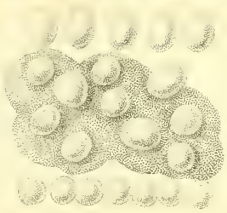
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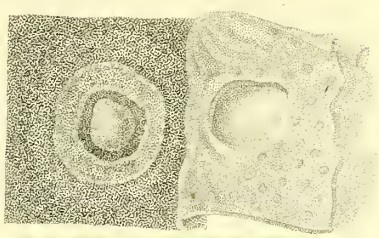
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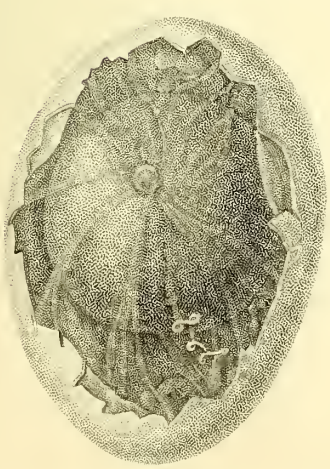
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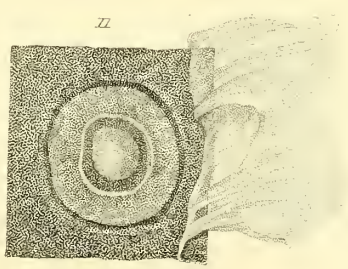
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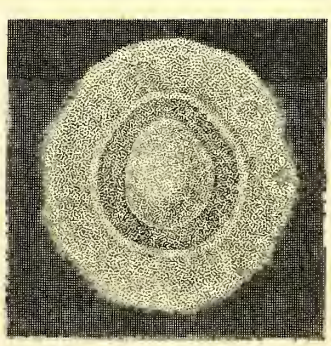
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TAB. CLVI.

LECTURE FOURTEENTH.

Fig. 1. An egg opened four hours after incubation. Natural size.

Fig. 2. A small portion of the yelk, with the molecule and areola under the external membrane of the yelk. Magnified five diameters.

Fig. 3. The bare molecule, hardened and laid upon a black ground. Magnified ten diameters.

Fig. 4. An egg opened eight hours after incubation. Natural size.

Fig. 5. A small portion of the yelk, with the molecule and areola lying on its surface under the external membrane, having acquired an outer areola. Magnified five diameters.

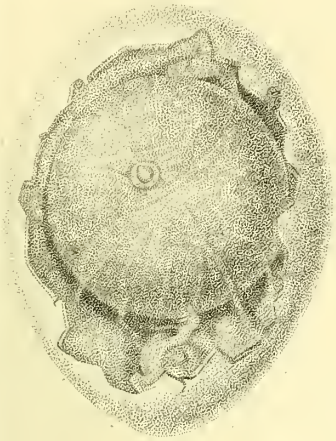
Fig. 6. The same molecule with its enlarged outer areola, hardened and laid on a black ground. Magnified ten diameters.

Fig. 7. An egg opened twelve hours after incubation. Natural size.

Fig. 8. A small portion of the yelk, with the embryo and its two areolas lying on the surface under the external membrane. Magnified five diameters.

Fig. 9. The same embryo and areola hardened and laid on a black ground. Magnified ten diameters.

Fig. 1.



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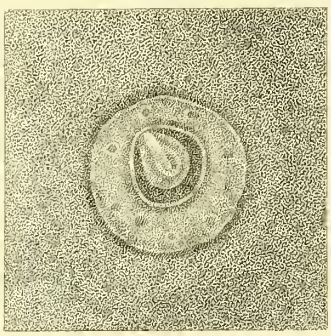

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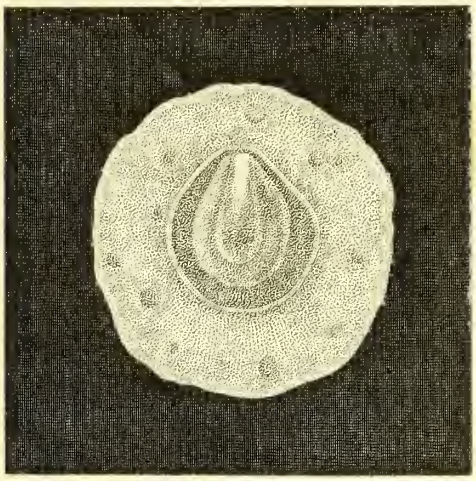

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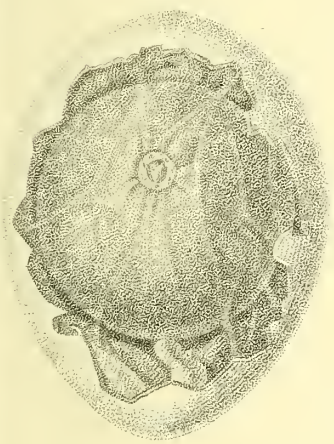

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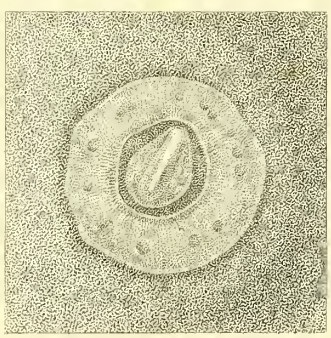

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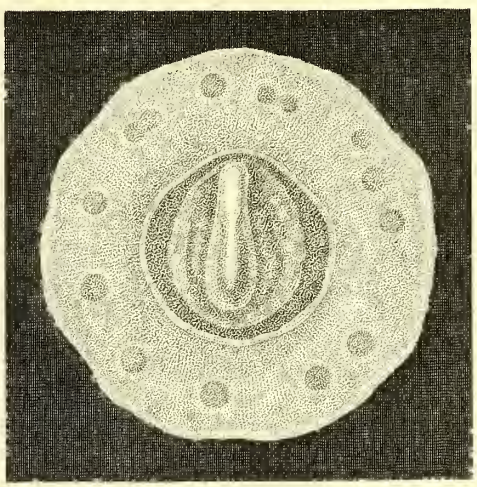

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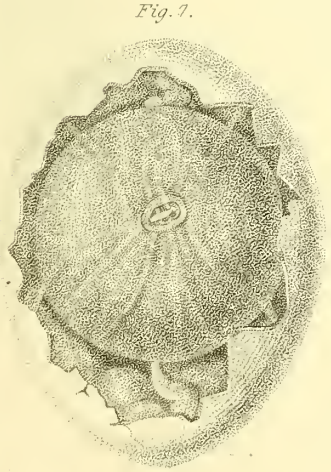

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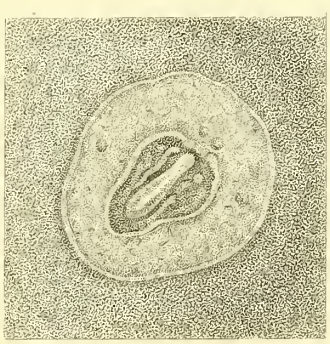

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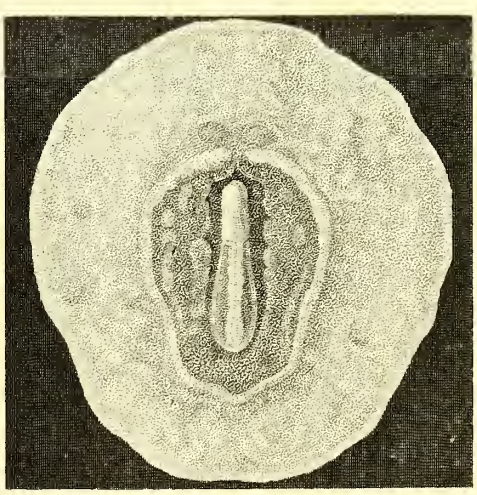

TAB. CLVII.

LECTURE FOURTEENTH.

Fig. 1. An egg opened sixteen hours after incubation. Natural size.

Fig. 2. A small portion of the yelk, with the embryo and areola lying on its bare surface, and the external membrane of the yelk entirely removed. Magnified five diameters.

Fig. 3. The same embryo, and a portion of the outer areola laid on a black ground. Magnified ten diameters.

Fig. 4. An egg opened twenty-four hours after incubation. Natural size.

Fig. 5. A small portion of the yelk, with the embryo and outer areola lying on its surface, and the external membrane of the yelk entirely removed. Magnified five diameters.

Fig. 6. The same embryo, and a portion of the outer areola laid on a black ground. Magnified ten diameters.

Fig. 7. An egg opened thirty-six hours after incubation. Natural size.

Fig. 8. A small portion of the yelk, with the embryo and areola lying on its surface, and the external membrane of the yelk removed. Magnified five diameters.

Fig. 9. The same embryo, and a portion of the outer areola laid on a black ground. Magnified ten diameters.

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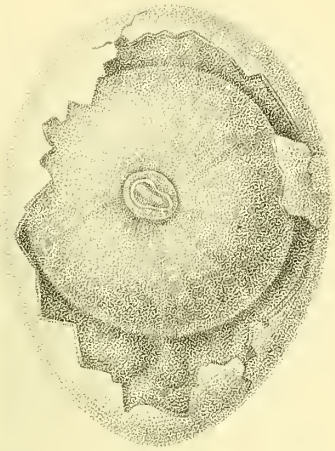

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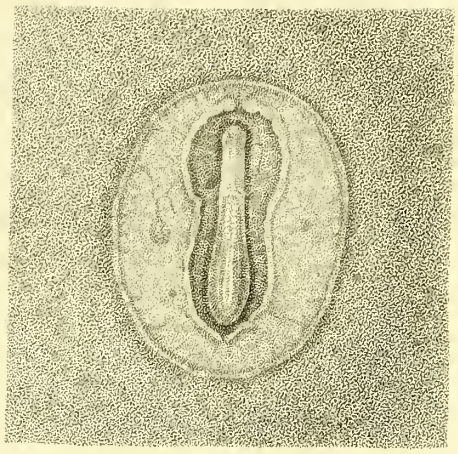

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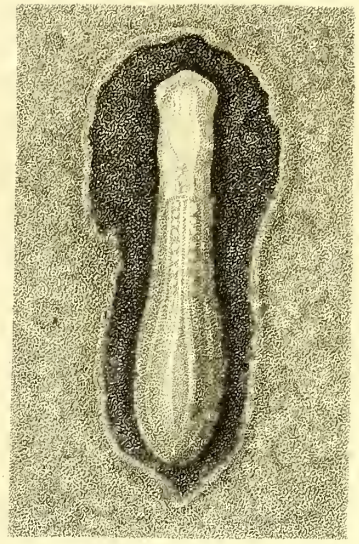

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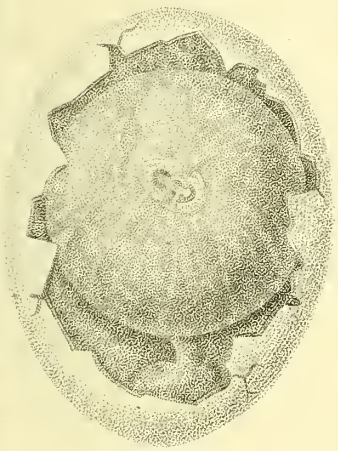
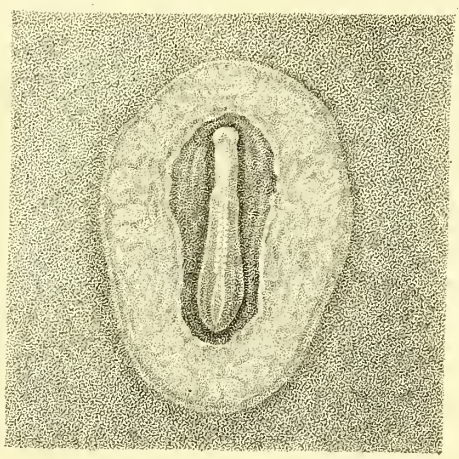


Fig. 5.



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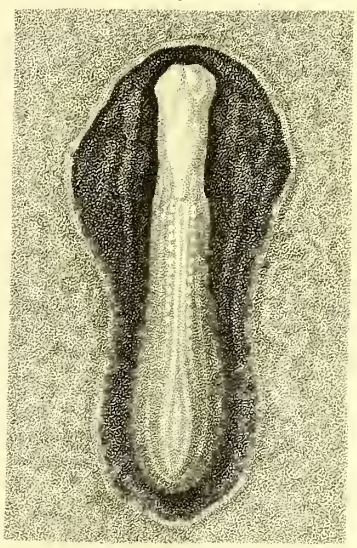


Fig. 7

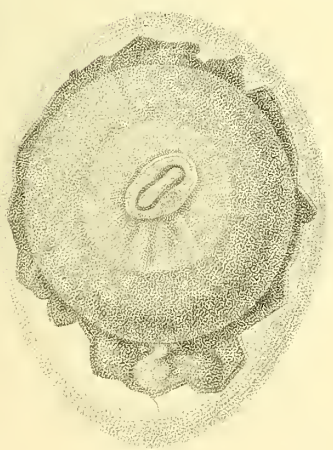


Fig. 8.

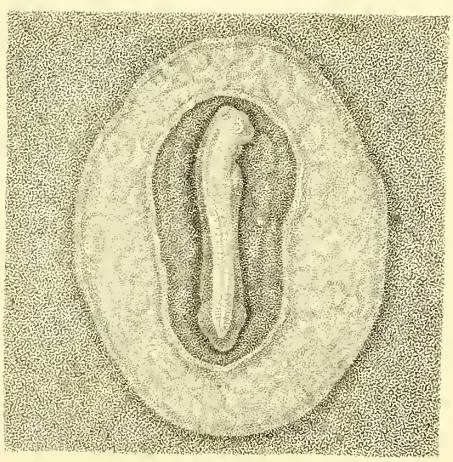
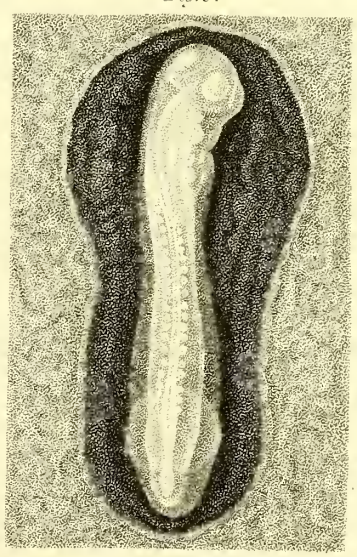


Fig. 9.



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TAB. CLVIII.

LECTURE FOURTEENTH.

Fig. 1. An egg opened two days and twelve hours after incubation. Natural size.

Fig. 2. A portion of the yelk, with the embryo lying in its natural position in the centre of the outer vascular areola, and the external membrane of the yelk removed. Magnified six diameters.

Fig. 3. The same embryo, with the principal branches of blood-vessels, turned upon its back, and laid upon a black ground. Magnified six diameters.

Fig. 4. An egg opened three days after incubation. Natural size.

Fig. 5. A portion of the yelk and vascular areola, with the embryo in its centre, lying entirely on its left side, which is its natural position. Magnified six diameters.

Fig. 6. The same embryo turned on its right side, and laid on a black ground. Magnified six diameters.

Fig. 7. An egg opened four days after incubation. Natural size.

Fig. 8. The embryo in its amnion, and with its vesicle removed from the yelk, and laid in its proper position on a black ground. Magnified four diameters.

Fig. 9. The same embryo without its amnion, turned on its back, and laid on a black ground. Magnified four diameters.

Fig. 1.

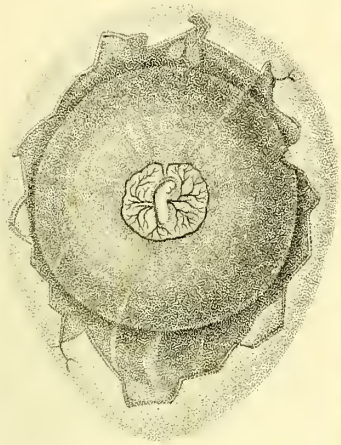


Fig. 2.

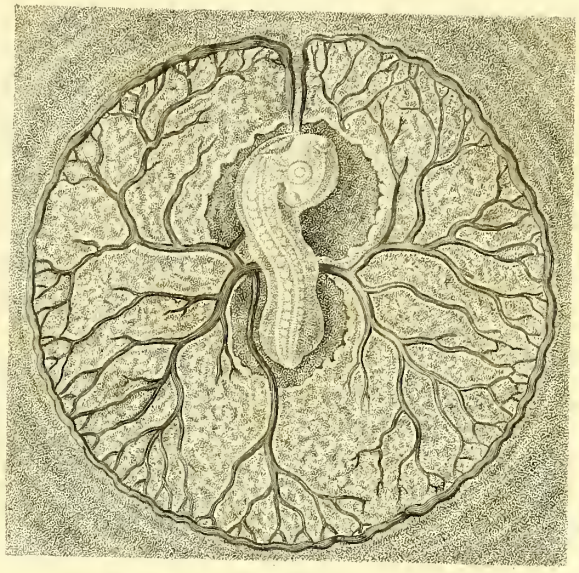


Fig. 3.

Fig. 4.

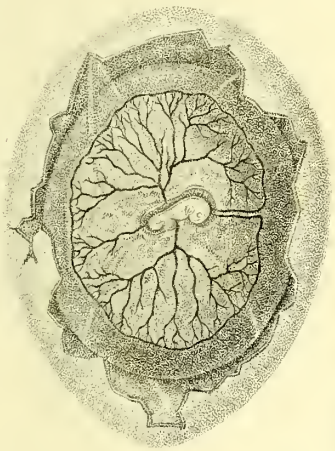


Fig. 5.

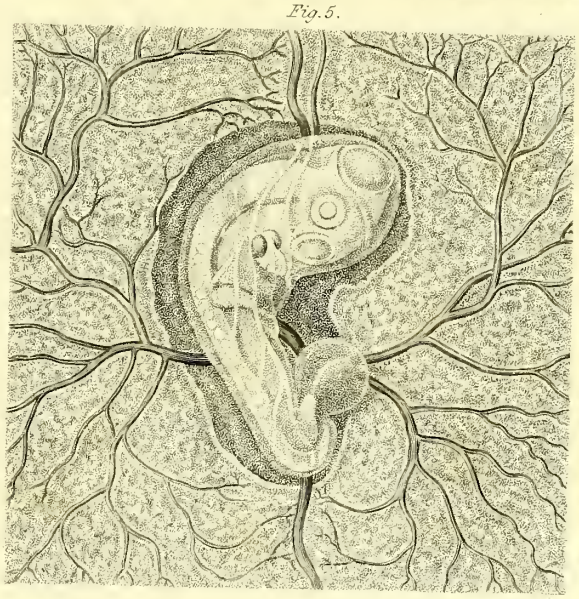


Fig. 6.

Fig. 7.

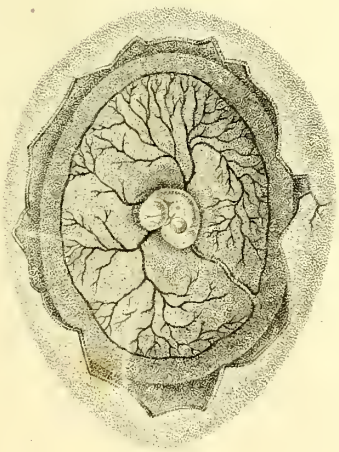


Fig. 8.

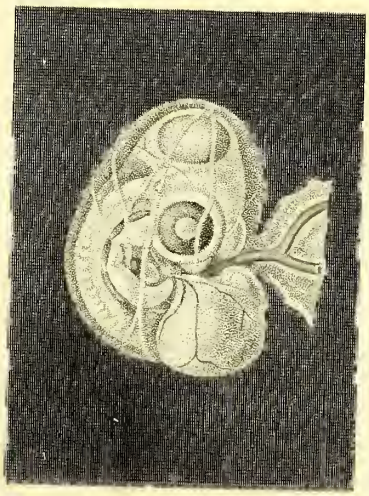
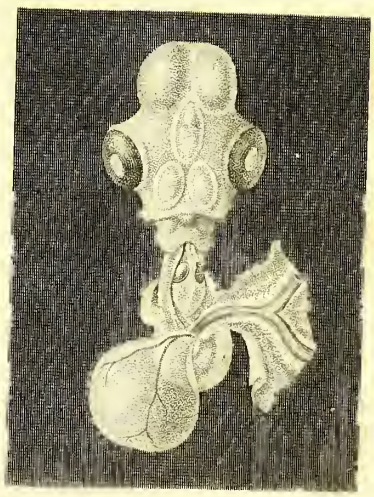


Fig. 9.



TAB. CLIX.

LECTURE FOURTEENTH.

Fig. 1. An egg opened five days after incubation. Natural size.

Fig. 2. The embryo in its amnion, and with its vesicle removed from the yelk, and represented in its natural position. Magnified three diameters.

Fig. 3. The same embryo taken out of its amnion, and turned upon its back, having on its right side the increasing vesicle, and on its left a small portion of the areolar membrane with the principal trunk of the blood-vessel. Magnified three diameters.

Fig 4. An egg opened six days after incubation. Natural size.

Fig. 5. The embryo in its amnion, and with its vesicle removed from the yelk, and represented in its natural position. The vesicle at this period forms an adhesion with the amnion at the lower extremity. Magnified three diameters.

Fig. 6. The same embryo turned on its back, having on its right side a small portion of the vesicular, and on its left, of the areolar membrane, with the principal trunks of their blood-vessels. Magnified three diameters.

Fig. 7. An egg opened the seventh day after incubation. Natural size.

Fig. 8. The embryo in its amnion, and with its vesicle removed from the yelk, and represented in its natural position. The vesicle, which at this period covers entirely the embryo, is here turned downwards, and shows the increasing adhesion with the amnion. Magnified two diameters.

Fig. 9. The same embryo taken out of its amnion, and turned upon its back, having on its right side a small portion of the vesicular, and on its left, of the areolar membrane, with the principal trunks of their blood-vessels. Magnified two diameters.

TAB. CLIX.

Fig. 1.

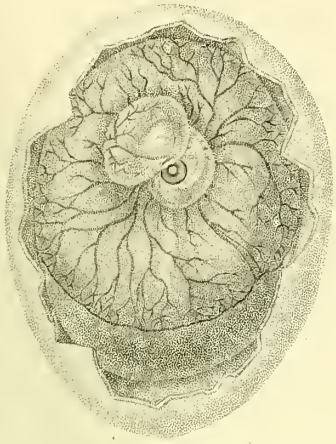


Fig. 2.

Fig. 3.

Fig. 4.

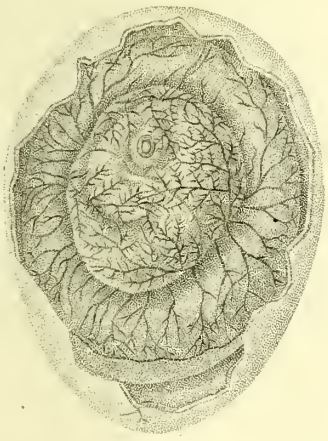


Fig. 5.

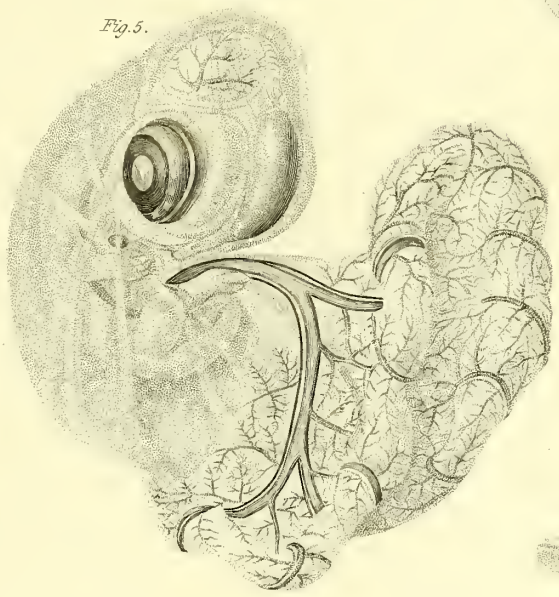


Fig. 6.

Fig. 7.

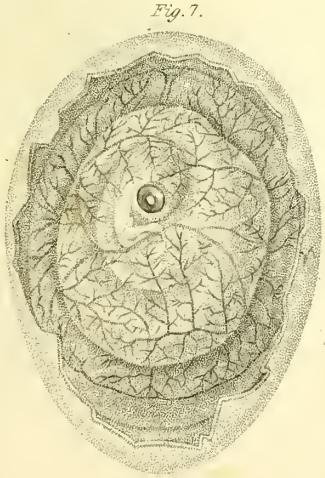


Fig. 8.

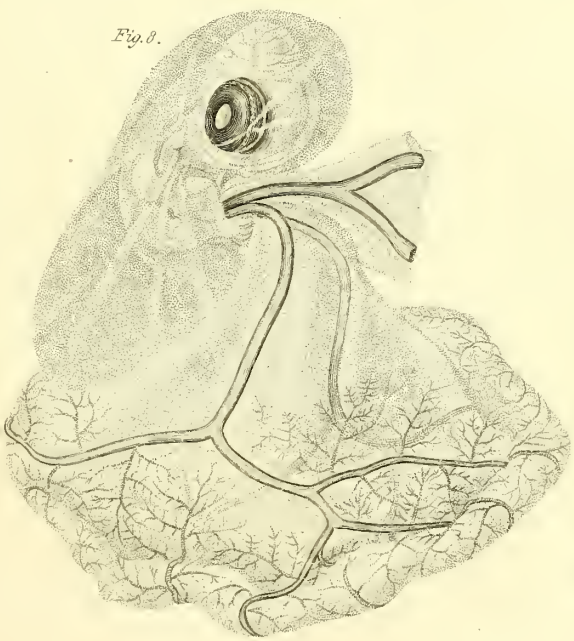


Fig. 9.

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Js Basire sculp.

TAB. CLX.

LECTURE FOURTEENTH.

Fig. 1. An egg opened eight days after incubation. Natural size.

Fig. 2. The embryo within its amnion, in its natural position, and with a portion of the vesicular and areolar membranes, with the principal trunks of their blood-vessels. Magnified two diameters.

Fig. 3. The same embryo turned on its back, having small portions of the vesicular and areolar membranes protruding from the enclosed part of the abdomen. Magnified two diameters.

Fig. 4. An egg opened nine days after incubation. Natural size.

Fig. 5. The same egg turned more to its right side, to show that at this period neither the vesicular nor the areolar membranes yet enclose the whole yelk, nor is the albumen entirely absorbed. Natural size.

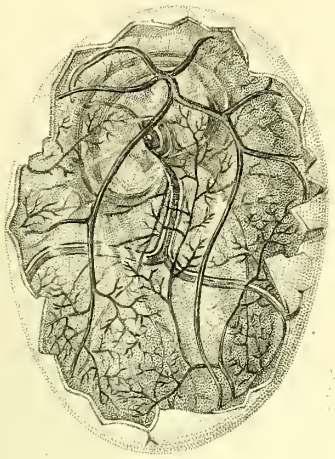
Fig. 6. The embryo of the same egg, with a portion of the vesicular and areolar membranes, and their principal blood-vessels: the amnion is opened as far as the vesicular adhesion admits. Magnified two diameters.

Fig. 7. An egg opened ten days after incubation. Natural size.

Fig. 8. The same egg with the external half of the vesicle removed, showing the embryo distinctly in its amnion, and the inner half of the vesicle, with its blood-vessels covering the whole. Natural size.

Fig. 9. The embryo of the same egg, with the amnion and the vesicle entirely removed, to show the opening in the abdomen, from which portions of the vesicular and areolar membranes and turns of the intestines are protruding: the roots of the feathers are now visible. Magnified two diameters.

Fig. 1.



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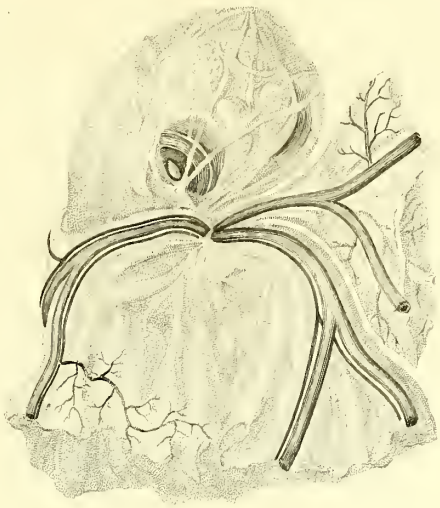


Fig. 3.

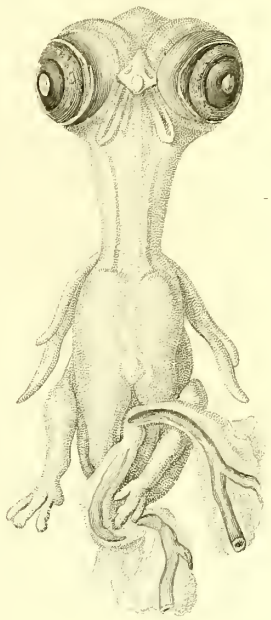


Fig. 4.

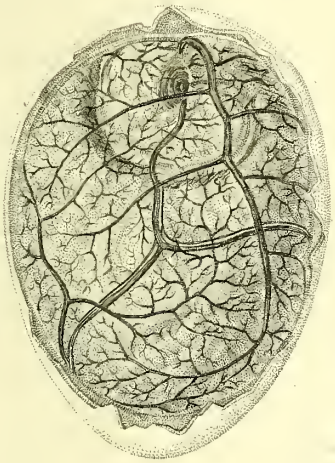


Fig. 6.

Fig. 5.

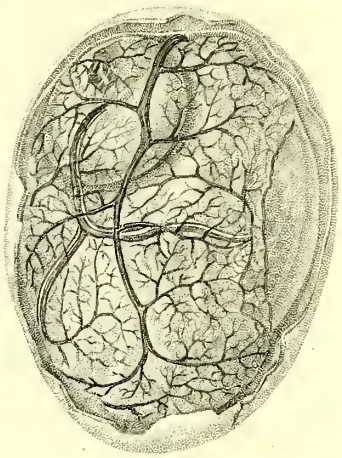
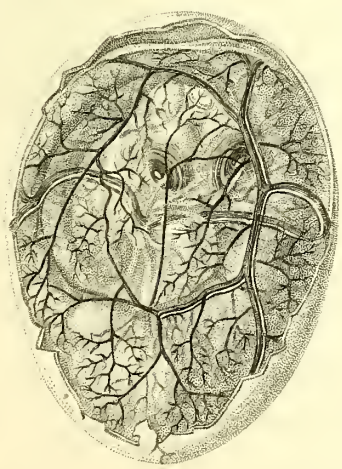


Fig. 7.



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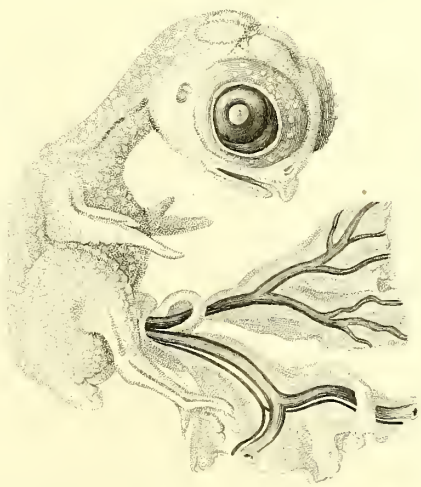
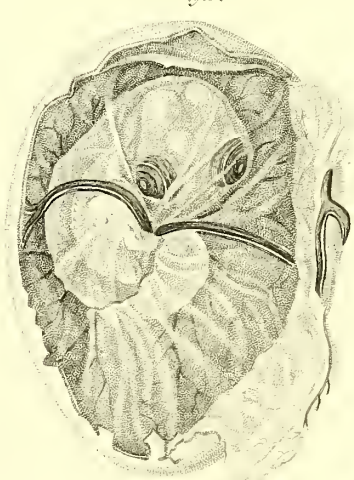


Fig. 8.



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TAB. CLXI.

LECTURE FOURTEENTH.

Fig. 1. An egg opened fourteen days after incubation. Natural size.

Fig. 2. The same egg, with the external half of the vesicle removed, to show the embryo in its amnion, and that the yelk is not yet entirely enclosed by the areolar membrane. Natural size.

Fig. 3. The embryo of the same egg; its thorax and abdomen opened; the heart and the lobes of the liver turned aside to show the course of the principal trunks of the blood-vessels which go to the vesicle and to the areolar membrane: the yelk, at this period, is still entirely without the body of the embryo. Magnified two diameters.

A A. A portion of the amnion. B B B. The vesicle. C C. A portion of the areolar membrane.

TAB. CLXI.

Fig. 1.

Fig. 2.

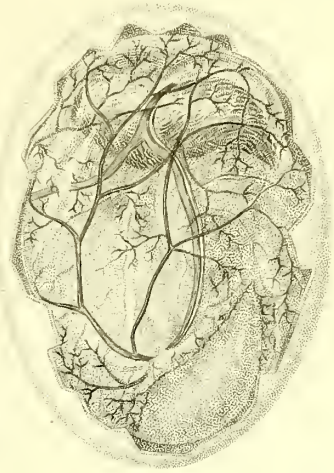
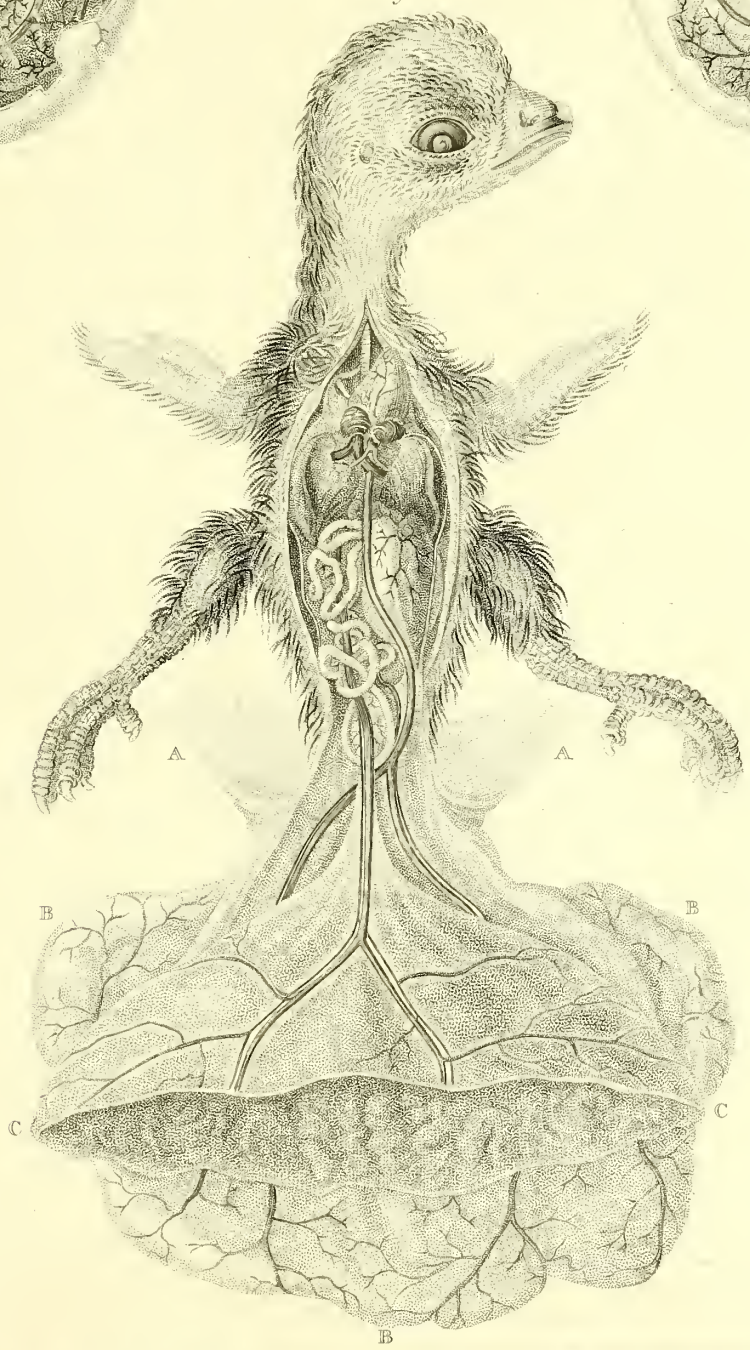


Fig. 3



Fr. nx. Bauer del.ª

J.ª Basire sculp.ª

TAB. CLXII.

LECTURE FOURTEENTH.

Fig. 1. An egg opened eighteen days after incubation. Natural size.

Fig. 2. The same egg, with the external half of the vesicle removed. Natural size.

Fig. 3. The chick taken from the same egg: the thorax and abdomen laid open to show that the greater part of the yelk is now drawn into the body. Natural size.

Fig. 1.

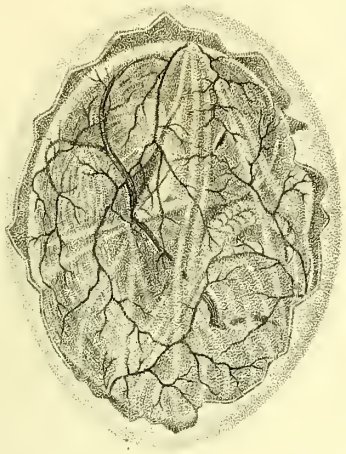
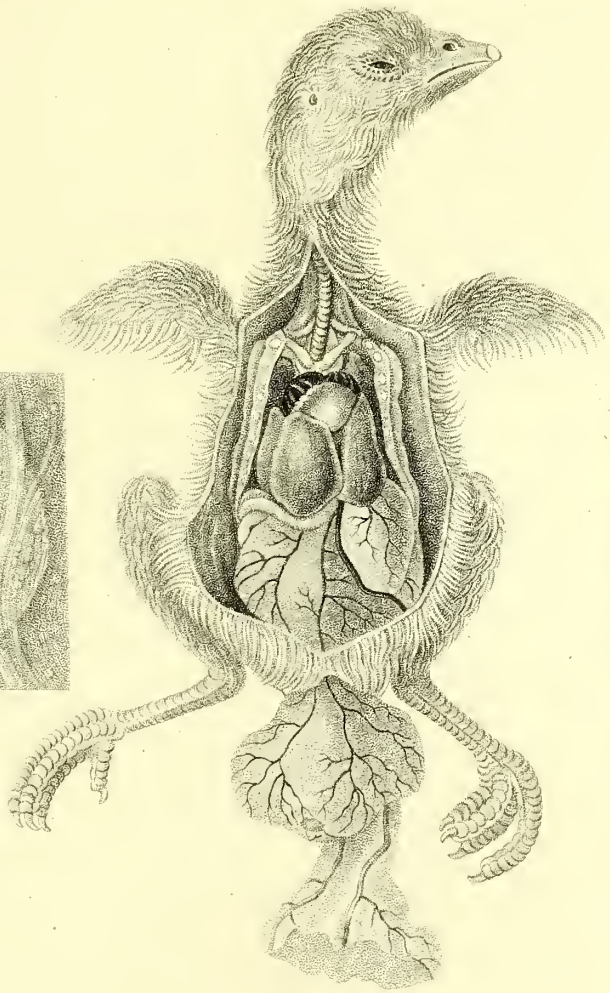


Fig. 2.

Fig. 3.



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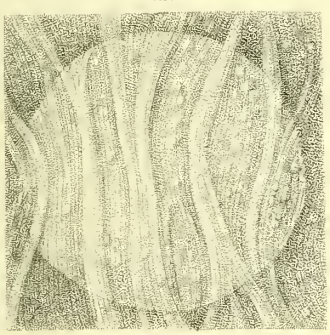
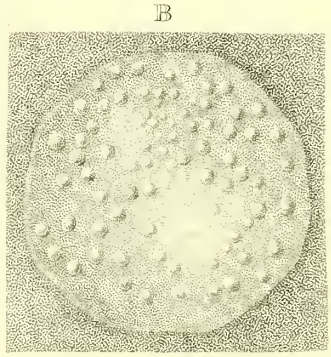


B



Franz. Bauer del.ª

Js. Basire sculp.ª

TAB. CLXIII.

LECTURE FOURTEENTH.

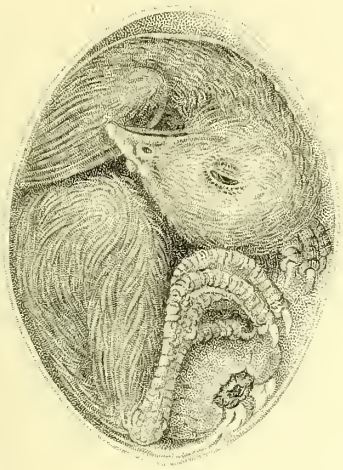
Fig. 1. An egg opened twenty days after incubation; the vesicle and amnion entirely removed, to show the natural position of the perfectly formed chick. Natural size.

Fig. 2. The chick taken out of the same egg, to show that the yelk is now entirely drawn into its body, only some small portion of the vesicular membrane protruding from the orifice of the abdomen, which is not yet quite closed. Natural size.

Fig. 3. The same chick opened, to show the natural position of the viscera and the yelk at this period of the incubation. Natural size.

TAB. CLXIII.

Fig. 1.



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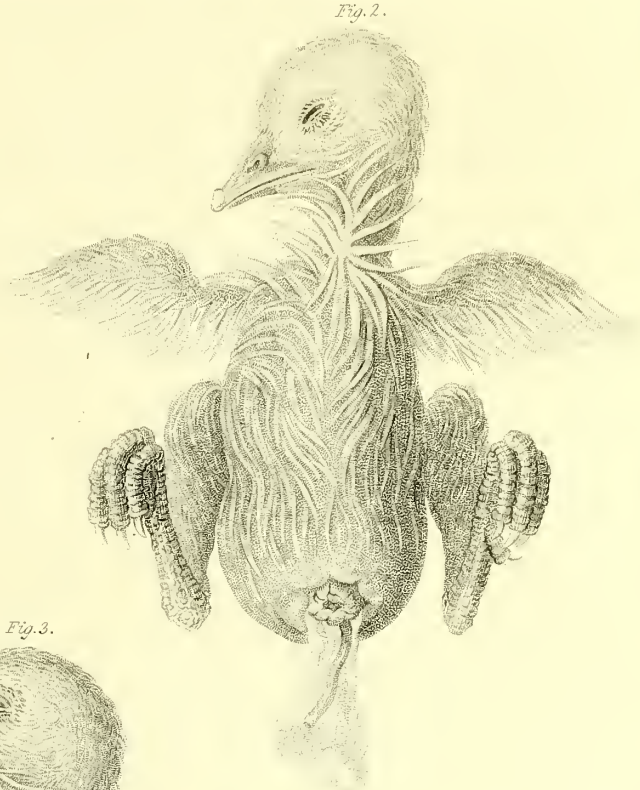
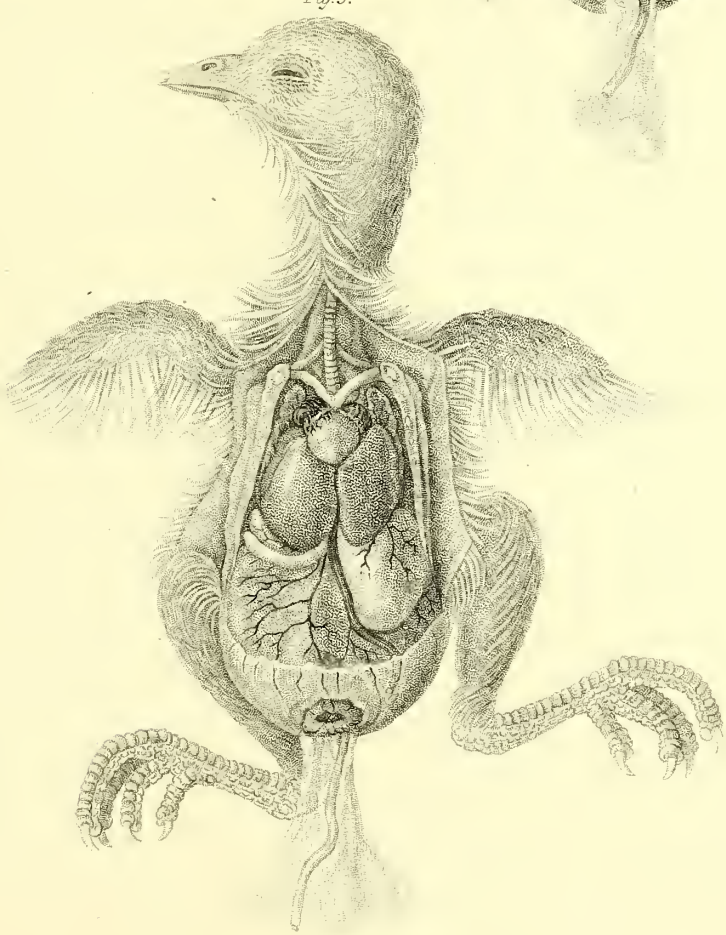


Fig. 3.



Franz. Bauer del.t

F. Basire sculp.

TAB. CLXIV.

LECTURE FOURTEENTH.

Fig. 1. A chick, after being hatched twenty-four hours; the thorax and abdomen opened, to show the natural position of the viscera and yelk; the crop at that time is full of corn, and other food. Natural size.

Fig. 2. The viscera of the same chick; the heart turned upwards, and the two lobes of the liver laid aside, to show the termination and course of the vena cava, which is traced to the vesicle, and a large trunk from the areola forms vena portæ. Magnified two diameters.

Fig. 3. A posterior view of the gizzard and œsophagus, to show the origin of the duodenum, and the course of the intestinal canal, of the same chick. Magnified two diameters.

Fig. 4. An anterior view of the rectum and colon, to show, at A, where the great mass of the yelk has been cut off. Magnified two diameters.

Fig. 1.

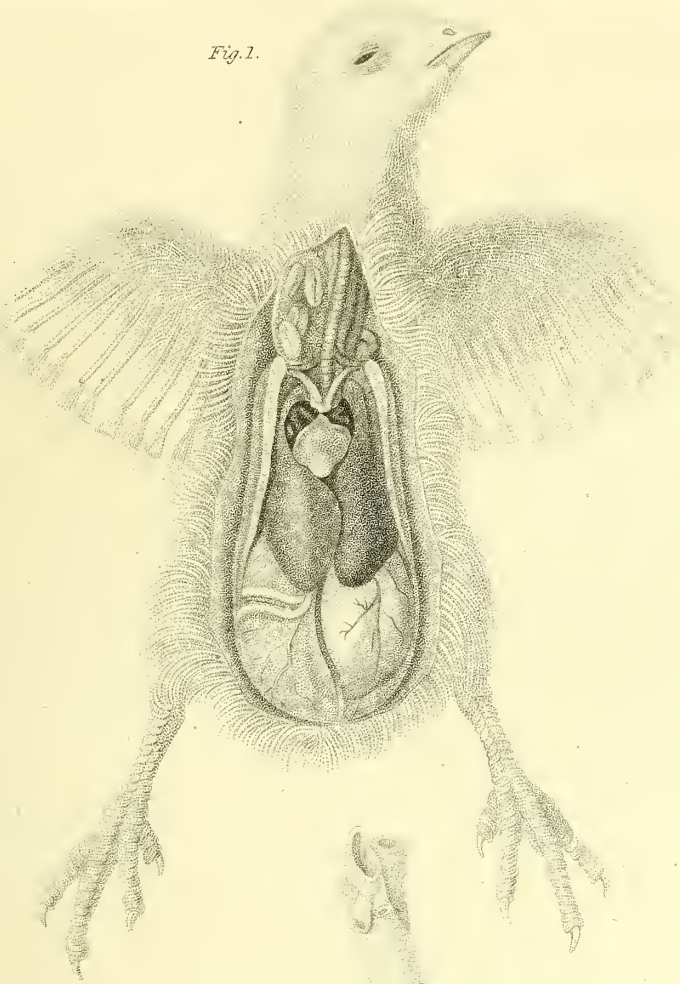


Fig. 2.

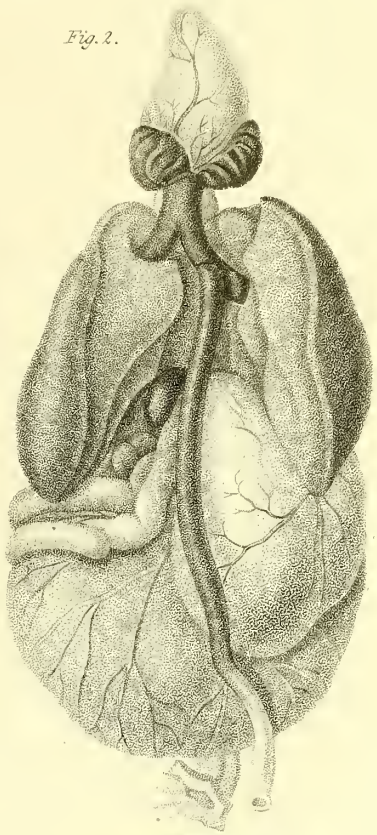


Fig. 3.

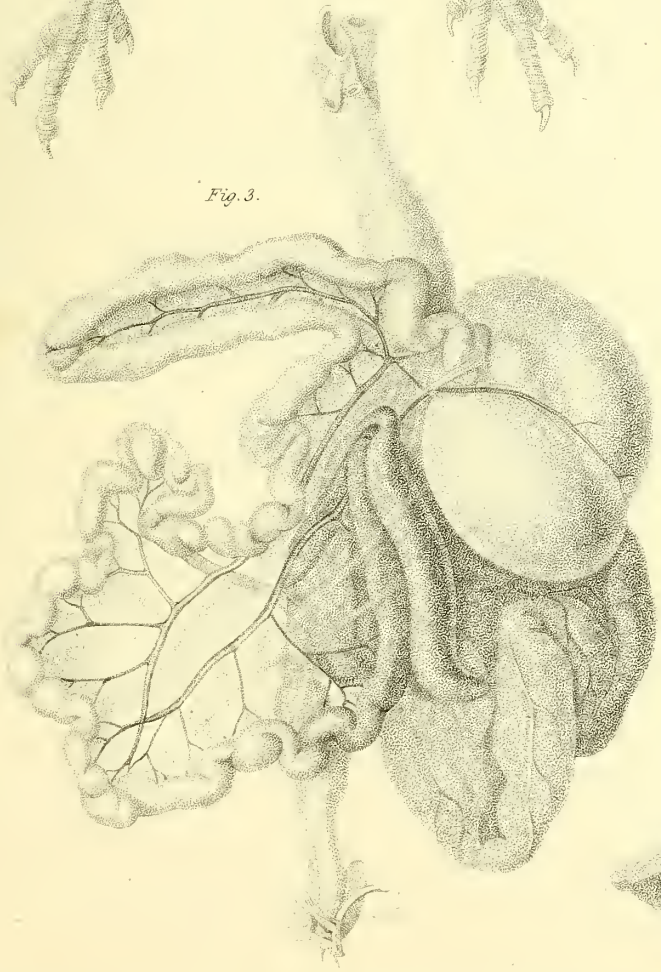


Fig. 4.

A

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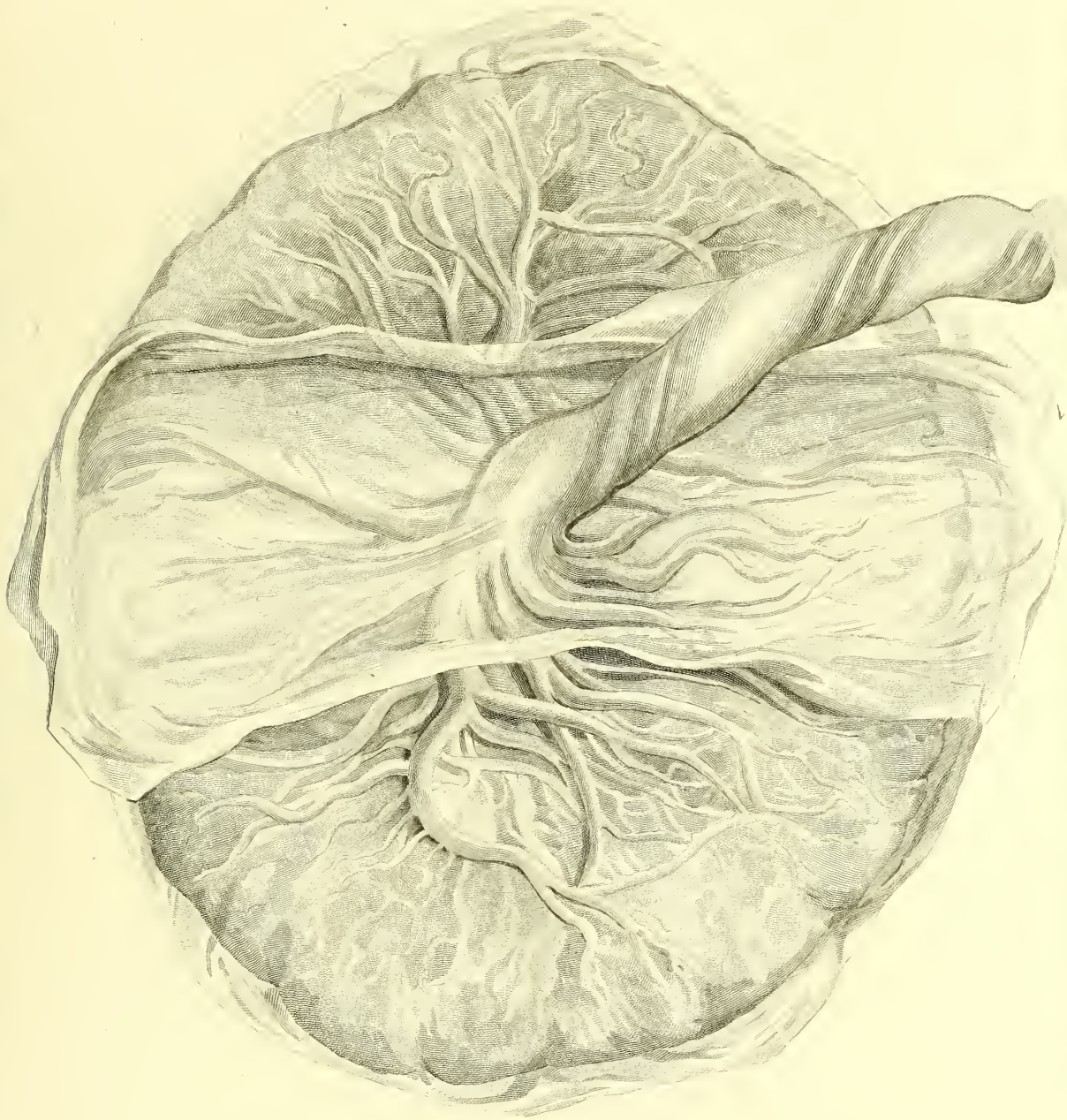
TAB. CLXV.

LECTURE FIFTEENTH.

The fœtal surface of the human placenta. The amnion turned a little inwards.

TAB. CLXV.



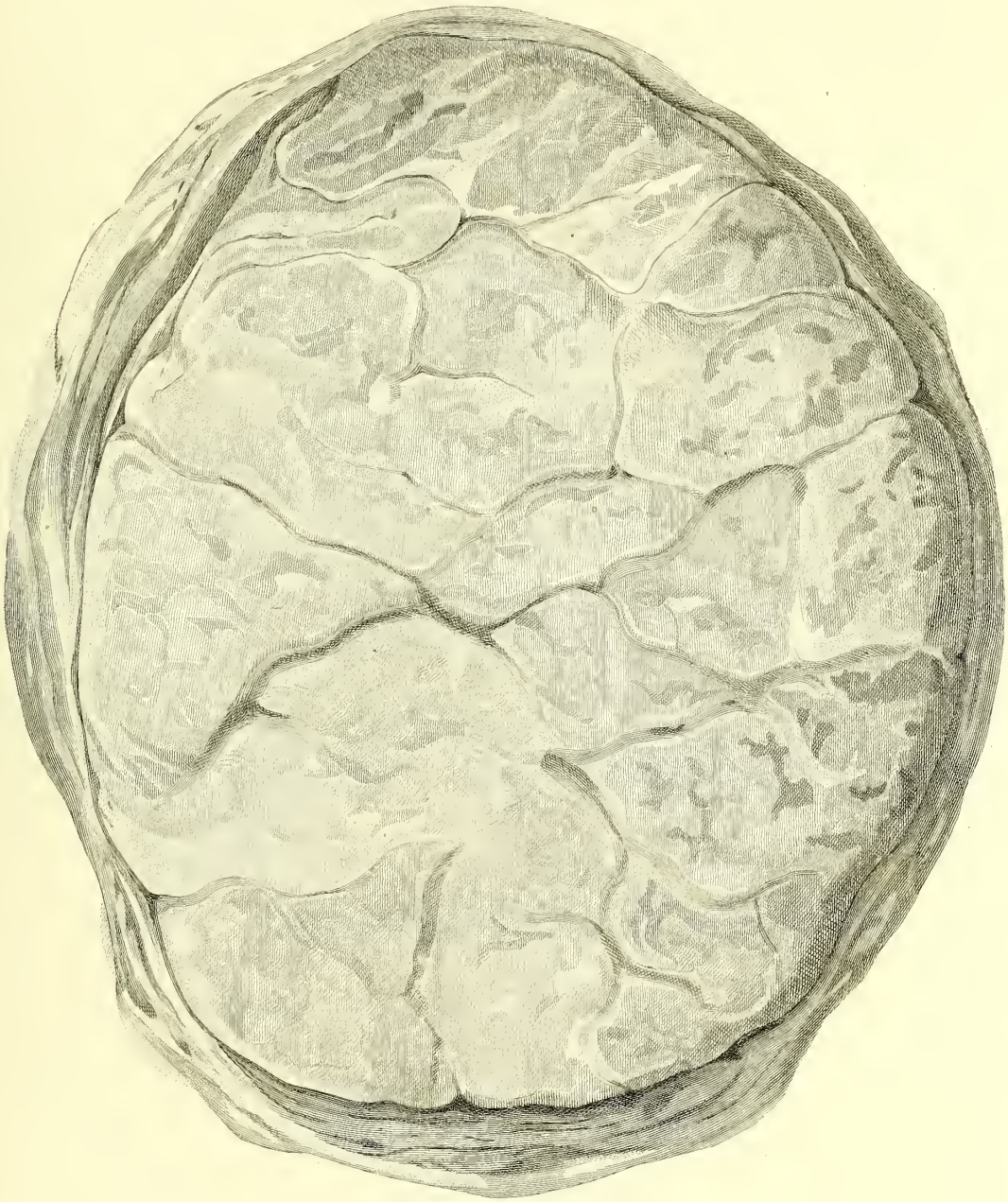
Wm. Clift del.t

J.s Basire sculp.t

TAB. CLXVI.

LECTURE FIFTEENTH.

The uterine surface of the human placenta.



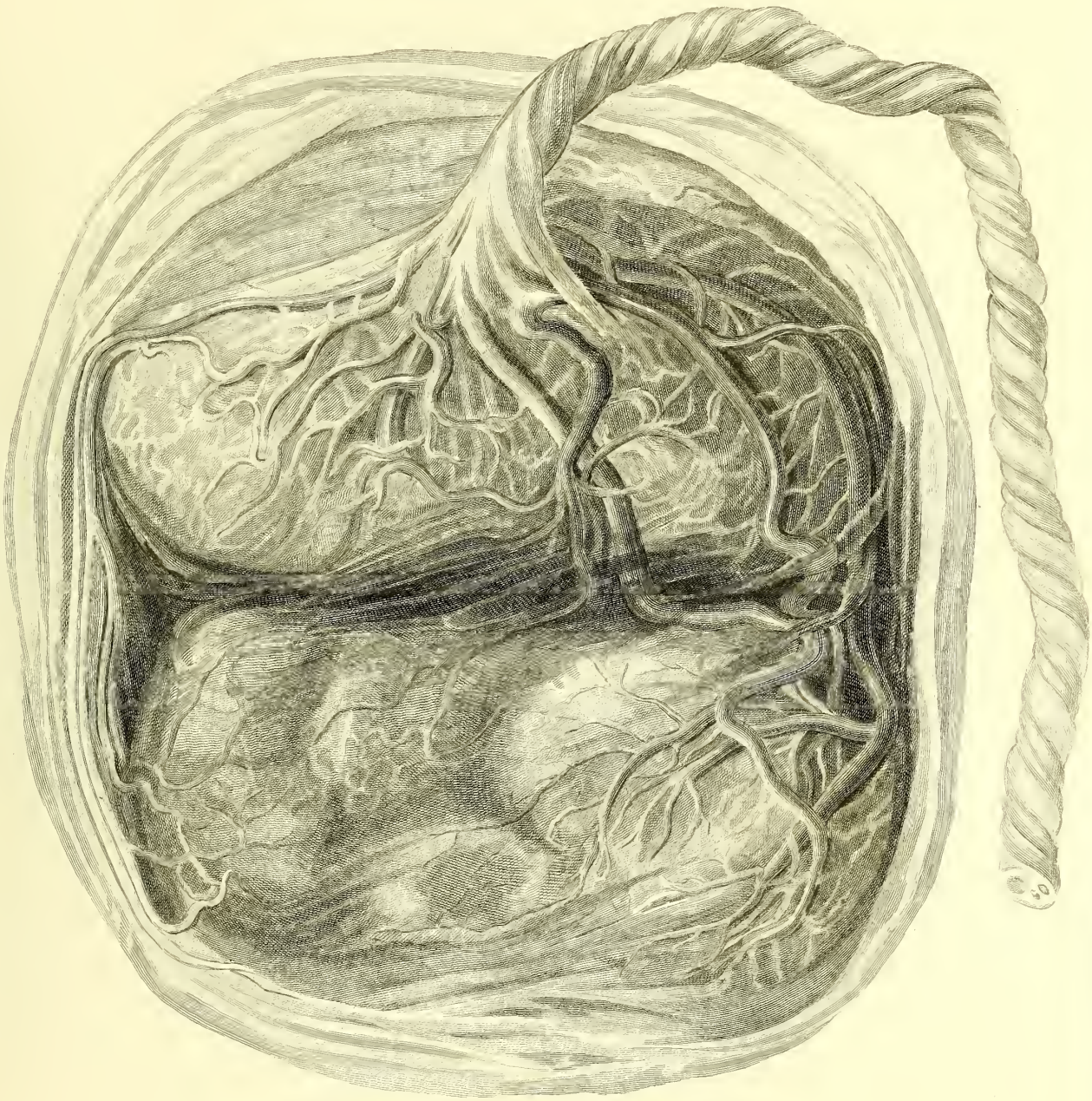
W^m Clift del.^t

J^s Basire sculp.^t

TAB. CLXVII.

LECTURE FIFTEENTH.

The fœtal surface of the placenta of the monkey. The whole surface covered by the amnion.



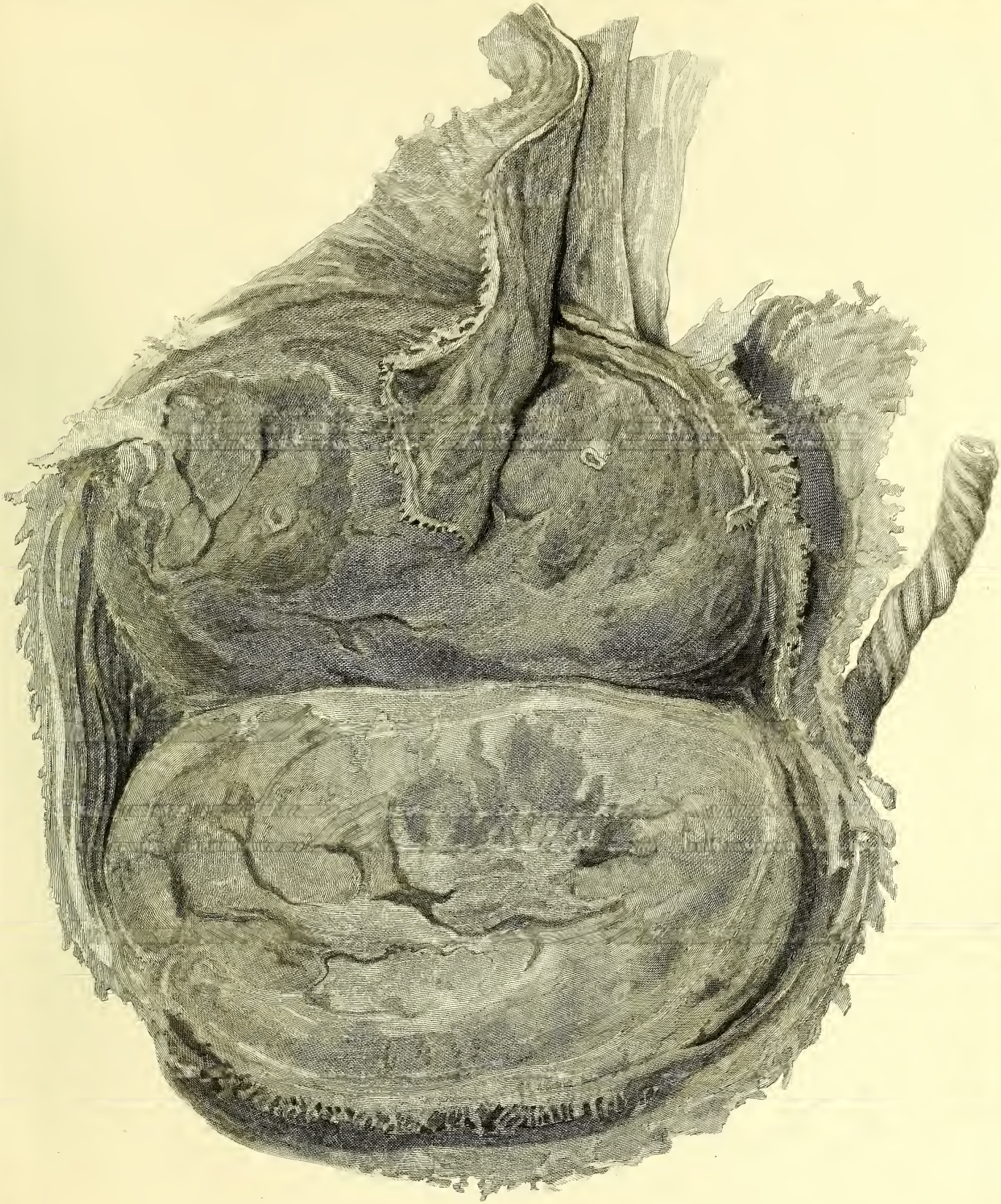
Wm Clift del.t

Js Basire sculp.t

TAB. CLXVIII.

LECTURE FIFTEENTH.

The uterine surface of the placenta of the monkey.



Wm. Clift del.

J.s Basire sculp.

TAB. CLXIX.

LECTURE FIFTEENTH.

Fig. 1. A fœtus of the cat inclosed in its membranes, to show the uterine surface of its circular placenta.

Fig. 2. The fœtal surface of the placenta of the rabbit, divided into five lobes.

Fig. 3. The uterine surface of the same placenta.

Fig. 1.

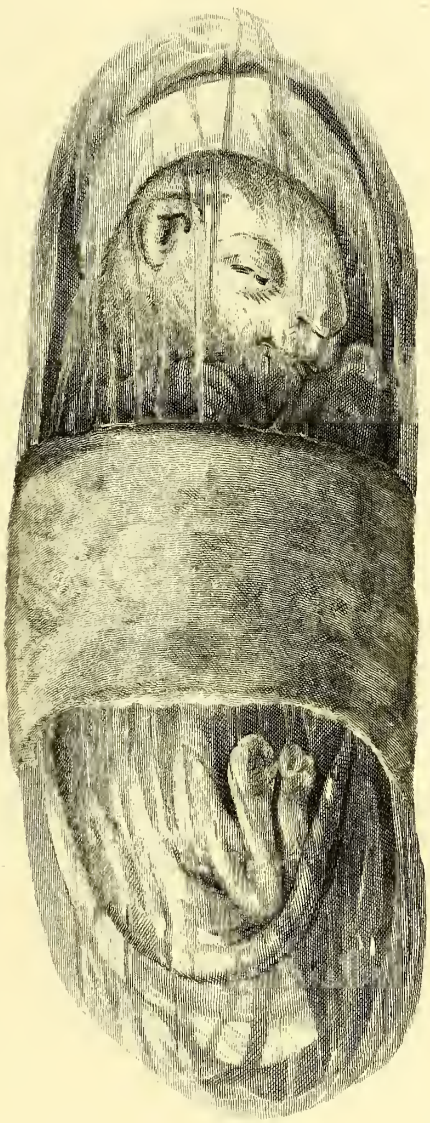
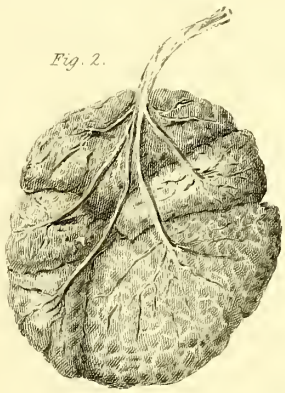


Fig. 2.



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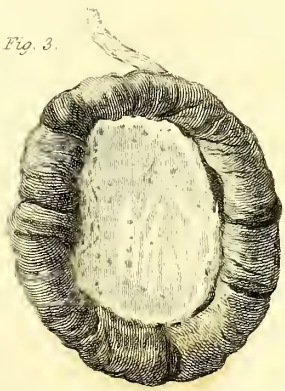

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TAB. CLXX.

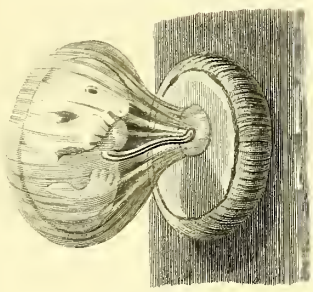
LECTURE FIFTEENTH.

Fig. 1. The fœtus of the hedge-hog inclosed in its membranes attached to the placenta.

Fig. 2. The fœtus of the rat inclosed in its membranes attached to the placenta.

Fig. 3. The fœtus of the guinea-pig inclosed in its membranes attached to the placenta.

Fig. 1.



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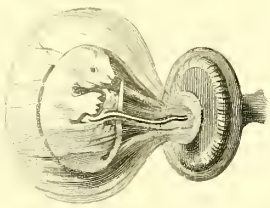
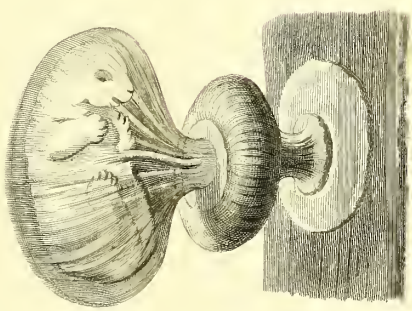


Fig. 3.



TAB. CLXXI.

LECTURE FIFTEENTH.

Fig. 1. The uterine surface of the cotyledon of the cow.

Fig. 2. The fœtal surface of the same cotyledon.

Fig. 3. The terminating vessels of the fœtal portion of the cotyledon of the deer.

Fig. 4. The terminating vessels of the fœtal portion of the cotyledon of the sheep.

Fig. 5. The terminating vessels of the fœtal portion of the cotyledon of the goat.

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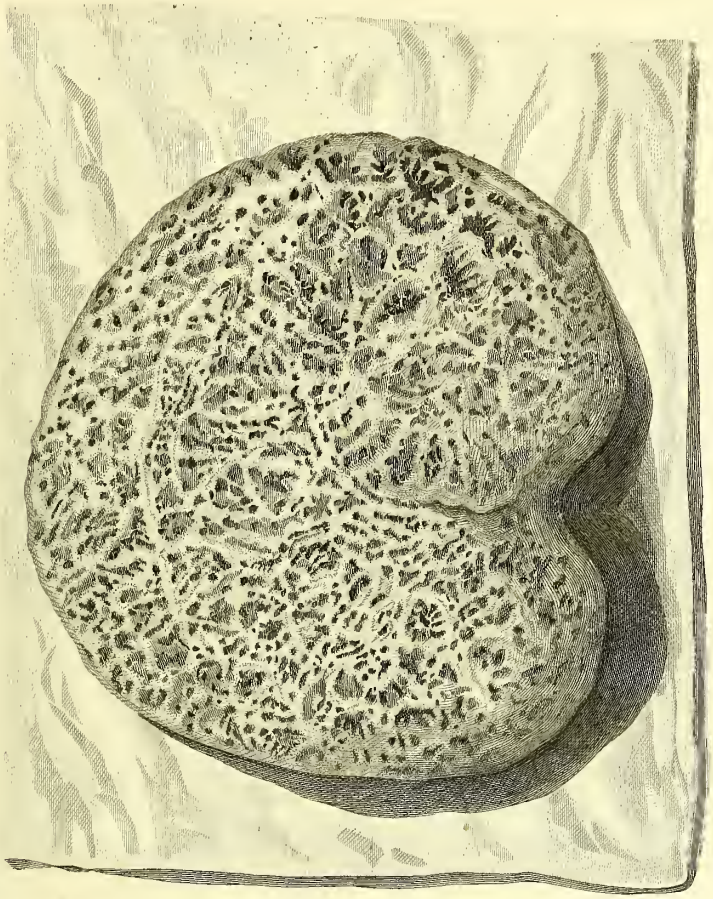


Fig. 1.

Fig. 3

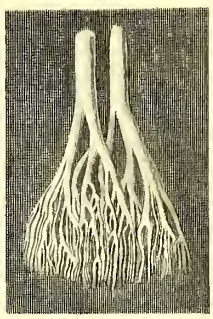


Fig. 4.

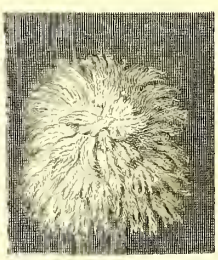
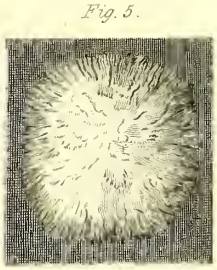


Fig. 2.

Fig. 5.



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